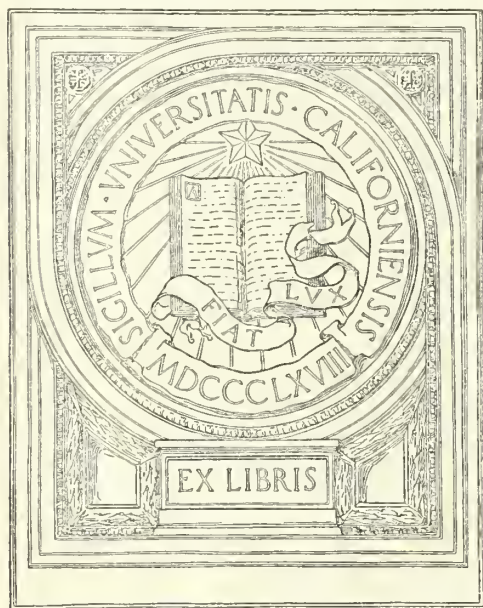



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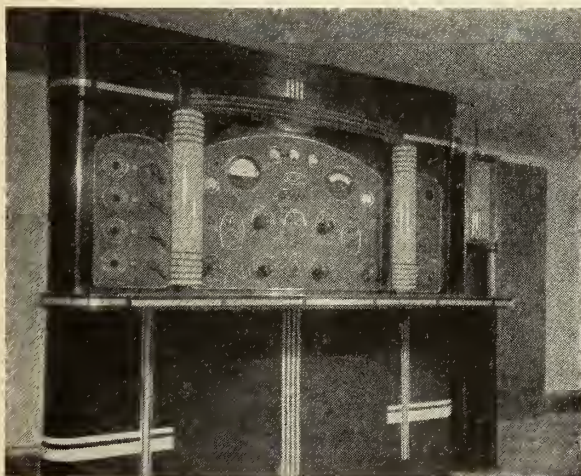
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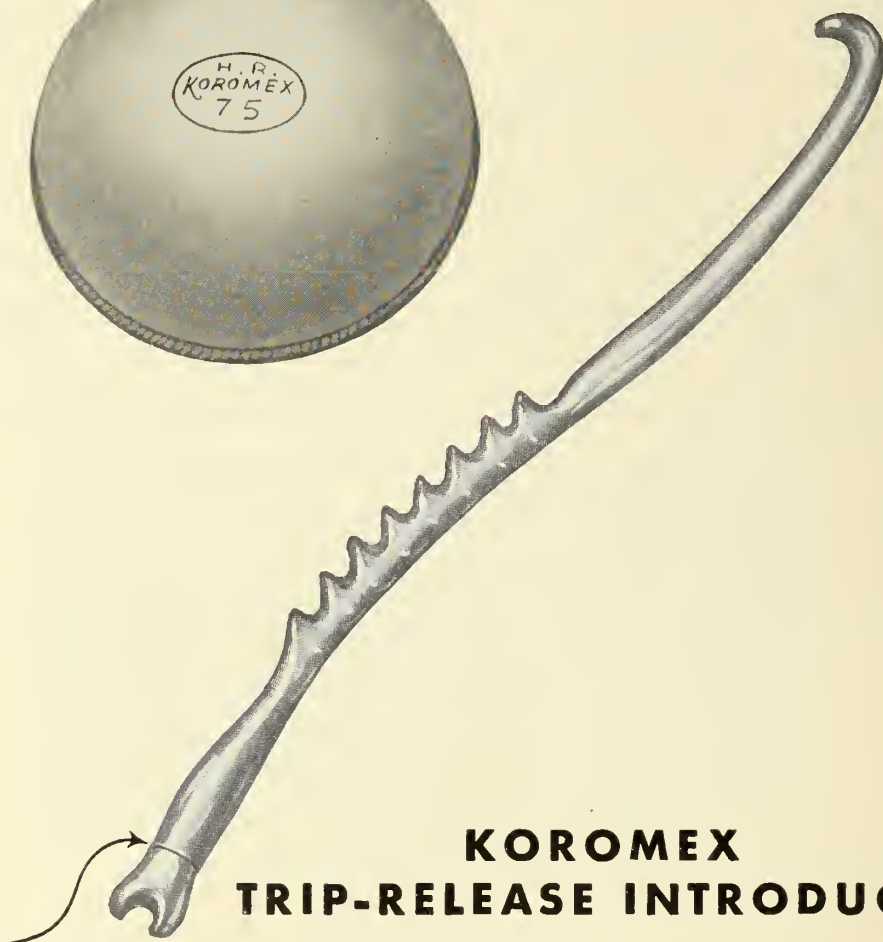
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**J.A.M.A.*, 93:1110, October 12, 1929

Bruckner, Die Biochemie des Tabaks, 1936

***The Military Surgeon*, Vol. 89, No. 1, p. 7, July, 1941

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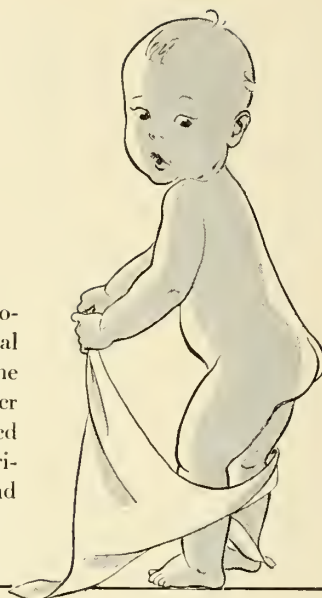
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1. Council Report: J.A.M.A., 113: 1734, 1939

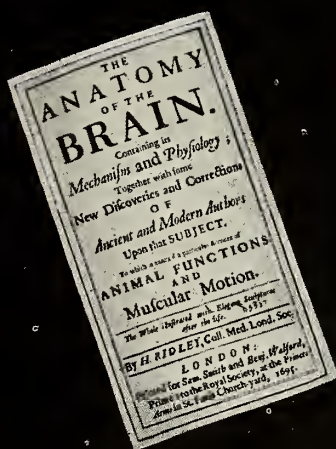
2. Merritt, H. H. & Putnam, T. J.: A. J. Psychiat., 96: 1023, 1940

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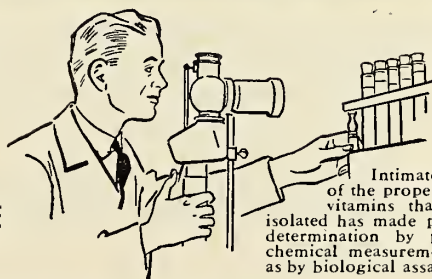
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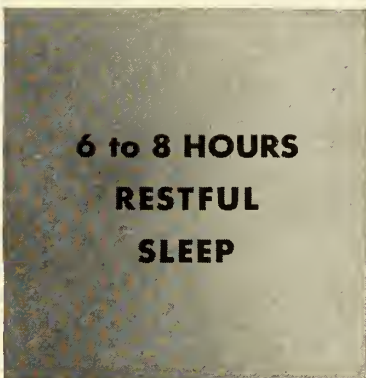


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- (1) 1932. J. Am. Med. Assoc. 98, 1429
 1938. Nutrition Abstracts and Reviews 8, 281.
 1938. J. Am. Med. Assoc. 110, 650.
 1940. J. Am. Diet. Assoc. 16, 891.



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MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 25

January, 1942

No. 1

THE PRESENT STATUS OF HORMONE THERAPY

MAX HOFFMAN, M.D.

Saint Paul, Minnesota

THE advances in the field of endocrinology in the last decade have been so rapid that even the physician who is especially interested in this subject has difficulty in keeping abreast of the new developments.

The busy practitioner of medicine has a troublesome task in securing the facts regarding endocrine diseases and hormone therapy. Often his only sources of information are the pamphlets and booklets sent out by the manufacturers of chemical hormone products.

Some of the concerns producing hormones have done a great deal to further progress in this field through their own research work and in supplying materials for experimental and clinical observations to other workers. To these firms we can only be grateful. Others, however, either directly or indirectly misrepresent the value of hormone therapy and their own products.

It would be difficult to estimate the amount of money wasted in buying impotent hormone products and in the use of hormone therapy where it is not indicated. The sum must be tremendous.

If we should exclude from the list of endocrine entities, the thyroid diseases, diabetes mellitus, and menopause in women, the incidence of diagnosable endocrine disturbances would not be common. Also within the group in which we are able to make a diagnosis of endocrine disease there are many conditions which cannot be treated by hormone therapy.

The promiscuous use of endocrine substances in conditions where there is no accurate indication for such therapy is not only wasteful but

in some cases is actually harmful and serves only to bring discredit on this form of therapy.

The diagnosis of endocrine states is usually not easy and often the physician is tempted to try some form of hormone treatment without having any good idea as to just what gland is involved. Fortunately, he usually chooses some member of the group of gonadotropics and with the doses commonly used he is not apt to do much damage.

The unsatisfactory state of a good deal of endocrine therapy is due to the fact that we often do not know the exact rôle played by a hormone in the body or the requirements of the body for this particular hormone.

It would be impossible to go into a detailed discussion of the individual hormones at this time; therefore an attempt will be made to evaluate, in the light of our present knowledge, the hormone preparations now available to the physician for clinical work.

Pituitary Gland Hormones

The pituitary gland has been called the master or motor gland and through its various hormones controls the activity of the other endocrine glands in the body. The clinical value of the hormones of the posterior lobe has so well been established that a discussion at this time will not be necessary.

Although the anterior lobe is said to produce seven or more hormones, only two types are available at this time. They are the "growth hormone," and the "gonadotropic" or sex stimulating hormone.

Our knowledge of the growth hormone is still very much in the experimental stage and the literature does not contain many reports

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regarding its effectiveness. Several series of clinical investigations show that it has some value in stimulating growth in instances where growth has been retarded. The results as a whole have not been spectacular, but indicate that this form of therapy is not without value. To achieve the best results it should be started early in life and the treatment must be kept up intermittently for periods as long as two years.

The gonadotropic hormones have been the subject of considerable discussion for the last two years. They have received considerable abuse, some of which is unjustified. The poor results secured following the use of these hormones have been at least in part due to the improper selection of cases, and the use of impotent hormones, or too small amounts of the hormone.

Although the claims for the value of this hormone made by some of the manufacturers are highly exaggerated, these preparations are of value in many instances, but not in all the conditions which are indicated in the pamphlet accompanying the box.

There are three main types of this hormone:

1. Anterior pituitary gonadotropic: This is secured from the gland itself or from the urine of castrates or menopausal urine.
2. Pregnancy urine gonadotropic (A.-P.-L. or chorionic gonadotropin).
3. Pregnant mares' serum (equinin).

These three gonadotropins vary somewhat in their action. The anterior pituitary hormone is capable of stimulating the ovary in the absence of the pituitary gland whereas the chorionic gonadotropin from pregnancy urine has very little effect on the ovary if the pituitary is intact, and none if it has been destroyed. The hormone from the pregnant mares' serum has more the action of the pituitary hormone than does the pregnancy urine hormone.

The information that we have today indicates that the chorionic gonadotropins are of very little value if we want to stimulate the ovary. There is some evidence that very large doses might be of value in gynecological conditions. More promising but still rather ineffective in gynecologic situations is the use of anterior pituitary hormones. Pregnant mares' serum runs a

second best. The whole subject of ovarian stimulative therapy is in a very confused state with most of the evidence showing that this form of therapy is not very effective. At best the physician shouldn't expect too much from any of these hormones in ovarian insufficiency.

More promising, but still not very spectacular in results except in occasional instances, is the effect of these hormones in stimulating maturation in the male. The early enthusiasm for this type of treatment in cryptorchidism has somewhat abated. The success of this form of therapy in numerous reports varies from 20 to 80 per cent. The lower figure is probably the more accurate. For those who believe that the gland should be brought into the scrotum at an early age, this form of therapy can be tried before surgery is resorted to. It is a well known fact that in many cases of cryptorchidism there is only a delay in the descent of the testis which will naturally correct itself in time.

Experimentally all the gonadotropins will maintain spermatogenesis after the pituitary gland has been ablated, if given early. Clinically these hormones are of very little, if any, value in oligospermia or aspermia.

The manufacturers of pregnant mares' serum claim that this hormone will produce ovulation. These claims are based on early work by two investigators whose results have not been verified by subsequent researches. The other claims made for this hormone have not been substantiated, and, inasmuch as it is an expensive preparation, its use at present should not be encouraged.

Parathyroid Hormones

The outstanding disturbance in parathyroid deficiency is a lowering of serum calcium which results in tetany and a train of other symptoms. Therapy is directed toward raising the calcium level in the blood. In milder cases, calcium administered together with viosterol is all that is necessary. In the more severe cases the natural hormone extracted from the gland, or the synthetic hormone, dihydrotachysterol, is very effective.

Because of its ease in administration, dihydrotachysterol is now generally preferred over the natural hormone. It can be given orally and 5 to 10 c.c. will cause a satisfactory rise in blood calcium in three to nine days. Often 2

to 6 c.c. a week will maintain a normal calcium blood level.

One must use this hormone with care as an excessive dosage will raise the blood calcium sufficiently to cause the formation of calculi in the kidneys and produce calcinosis in other organs.

Adrenal Cortical Hormone

The hormone of the medullary portion of the adrenal gland is epinephrine and its use is so well known that a discussion is not necessary.

No single hormone of the adrenal cortex either extracted from the gland or synthetically produced is capable of replacing all the functions of this organ. Some are capable of correcting the disturbances in the electrolytes, but have little effect on the carbohydrate metabolism. Other preparations have more action on the carbohydrate function and less on the sodium and potassium metabolism. Some of the preparations on the market have very little action of any kind. There is a great deal of variability in the potency of the products produced by different manufacturers, and one should select a preparation approved by the Council of Pharmacy of the American Medical Association.

The natural adrenal cortical hormones are very expensive and their uses should be restricted to definite cases of Addison's disease. Often in milder cases a restriction of potassium, and an increase of sodium in the diet may give a satisfactory result without hormones. By using this type of diet the amount of hormone necessary can frequently be reduced. In some cases of adrenal cortical insufficiency the hormone is necessary only during infections, or before or after operation.

The only synthetic adrenal cortical hormone now on the market is desoxycorticosterone, and is supplied by various manufacturers under different names. This product is constant in its potency and is very effective in restoring the sodium-potassium balance, but it has little action on the carbohydrate disturbance. It is capable experimentally of keeping adrenalectomized animals alive for long periods, and is often very valuable in the treatment of Addison's disease. However, it differs from the natural hormone in that overdosage may be very serious and a number of deaths have been reported following its use. In order to control the proper dosage, ex-

tensive laboratory control is necessary. For the general practitioner this preparation is not recommended. Although the natural extracts are more expensive, overdosage is not harmful.

The Ovarian Hormones

The physician has developed an intense interest in the ovarian hormones because the frequency of ovarian disturbances is much greater than most of the other endocrine conditions met with in clinical medicine.

There are two types of these hormones: the estrogenic or endometrial proliferative hormone and the luteal or secretory hormone. These hormones, together with the gonadotropic hormone of the anterior pituitary gland control the menstrual cycle. The exact mechanism that occurs in menstruation is not known. For that reason, even though we have potent ovarian hormones, treatment with these hormones in menstrual disturbances has not been very satisfactory.

The estrogenic hormones have a definite action in stimulating the development of the accessory sex characters in the female. These changes are usually very temporary and have a tendency to disappear when the hormone is withdrawn.

There are only two definite indications for the use of estrogens in therapy. These are gonorrheal vaginitis in children and in the treatment of the menopause in females.

Treatment can be administered by injection, by inunction and by the oral route. The choice of treatment would be determined by the expense or by the need for a quick response.

The other ovarian hormone is progestin or progesterone, and it is the hormone produced by the corpus luteum. The effect of this hormone on the endometrium after the estrogenic hormone has caused the proliferative changes completes the menstrual changes.

It has been used for dysmenorrhea and the functional types of bleeding that occur in the menses and in the menopause. Any beneficial action in these cases is very doubtful inasmuch as we know very little about the cause or causes of functional uterine bleeding.

The only reasonable indication for the use of this hormone is in cases of threatened or periodic abortion. In the first instance the therapy must be carried out over long periods and its use is expensive. Either the injectable or the oral forms of therapy can be tried.

The Testicular Hormone

The male hormone is available in several forms, as testosterone propionate for injections or for cutaneous application or as methyl testosterone in tablets for oral use. It is a potent hormone and is capable of stimulating the development of the male secondary sex apparatus. Its effect is temporary and disappears when the hormone is discontinued. It is particularly valuable in cases of castration in young males. It also is of great value in adults who have lost their testicular function and who suffer from this loss. Not all castrates have disabilities resulting from the loss of this hormone.

The use of this hormone in children is rarely justifiable unless the testes have been destroyed by accident or disease. There is a definite danger that it can produce an atrophy of the testis when it is administered to an individual with functioning gonads.

There is no good evidence that this hormone is of real value in the treatment of gynecological disturbances. Several instances have been reported where masculine changes have been stimulated to develop in women who have received this hormone.

It is not effective in stimulating spermatoge-

nesis; in fact most of the evidence shows that it inhibits sperm formation and development.

All forms of testosterone are potent, but most of the other products that are said to contain the male hormone have so little activity that they are useless. Testosterone, like many of the other hormones, is expensive, especially when one uses the dosages that are necessary to achieve a good result.

Conclusions

1. Aside from a few well-known diseases, the number of endocrine disturbances is not great.

2. All individuals who have endocrine diseases do not require hormone therapy.

3. Although most of the hormones produced and marketed by established firms are potent preparations, many on the market are not.

4. Hormone therapy is, for the most part, substitutive therapy, and inasmuch as it is usually a very expensive form of treatment for the patient, it should be administered only when there is a clear-cut indication for its use.

5. The physician should attempt to secure his information regarding hormone therapy from articles in reputable medical journals, written by capable men.

TEN CASES OF PARALYSIS AGITANS TREATED WITH VITAMIN B₆

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THE reports in the literature on the treatment of paralysis agitans with vitamin B₆ have in some cases been encouraging^{1,2} and in others discouraging.³ Our material consists of four cases of postencephalitic and six cases of idiopathic paralysis agitans.

As our patients are all relief clients whose diets could easily have been deficient in all vitamins, they were given brewer's yeast, 10 grains three times a day, and cod-liver oil tablets, one, three times a day. From previous experience we have found that these doses have no specific therapeutic effect in this illness. Fifty mgm. of vitamin B₆ were given daily, subcutaneously or intravenously, for ten days, then increased to 100 mgm. for three or four doses. The dose was then either continued or decreased, depending upon the patient's response. Patients responded

promptly to vitamin B₆ and quickly reached a degree of improvement beyond which even larger doses brought no benefit. After this degree of improvement was attained, the patient was maintained on 50 mgm. subcutaneously on alternate days. The intravenous route of administration seemed to offer no advantage over the subcutaneous. Not all patients were able to follow this routine identically because of practical considerations. However, attempt was made to keep treatment as uniform as possible.

All our patients had been taking drugs of the atropine series for many years and considerable difficulty was encountered when these medications were suddenly discontinued. In Case No. 6 a mild panic reaction occurred upon sudden discontinuation of hyoscine and stramonium. Therefore, these medications were gradually discon-

PARALYSIS AGITANS—MELLER

TABLE I. SUMMARY OF CASES OF PARALYSIS AGITANS

Case	Age	Duration of Illness	Type	Severity of Disease	Disability	Dosage	Duration of Treatment	Results of Treatment
1	30	18 Yrs.	Post-E	Severe	Practically bedridden	50 mgm. for 20 days; 100 mgm. for 10 days all intravenously	1 mo.	None
2	58	4 Yrs.	Idio	Moderate	Up and around but not able to work; speech indistinct	50 mgm. subcutaneously every other day	5 mo.	Gained weight, movements easier, walks steadier, spasticity less, tremor unchanged
3	53	10 Yrs.	Idio	Severe	Practically bedridden; body aches and pains	50 mgm. daily for 18 days; 100 mgm. daily for one week; then 50 mgm. twice weekly—all intravenously	5 mo.	Said "movements easier, walks faster, feels better." Spasticity appeared unchanged; tremor unchanged
4	32	2 Yrs.	Post-E	Mild	Up and around; had to quit work	50 mgm. daily for 1 week; 100 mgm. on alternate days for 14 doses; 50 mgm. twice a week since—all intravenously	5 mo.	Insisted he felt better. Objectively no change noted
5	69	11 Yrs.	Idio	Severe	Up and around	50 mgm. daily subcutaneously for 10 days; alternate days since	5 mo.	Gained weight, movements easier, walks steadier, spasticity less; tremor unchanged
6	56	20 Yrs.	Idio	Severe	Up in chair; seldom walked	50 mgm. subcutaneously daily for 20 doses; then alternate days	5 mo.	Gained weight, movements easier, walks erect and steadier, tremor much less, spasticity much less
7	53	5 Yrs.	Idio	Moderate	Up and around; did housework very slowly; marked masklike face	50 mgm. intravenously daily	19 days	Markedly improved; masklike face disappeared
8	36	14 Yrs.	Post-E	Mild; has frequent oculogyric crises	Up and around but not able to work	50 mgm. daily for week; 100 mgm. alternate days for 12 doses. 50 mgm. twice weekly	4 mo.	Said "movements easier, walks faster, feels much better." Spasticity appeared unchanged, tremor unchanged
9	57	11 Yrs.	Idio	Moderate	Up and around; tremor marked; shuffling gait	50 mgm. subcutaneously every other day	3 mo.	Gained weight, movements easier, walks steadier, spasticity less, tremor unchanged
10	57	10 Yrs.	Post-E	Mild	Up and around but not able to work	50 mgm. subcutaneously daily 12 days—then every other day	2 mo.	Insists that he feels better and can walk faster. Objectively no change noted

tinued until the patients felt secure without them.

As a partial control, three patients were treated with normal saline. One of these reported that he thought that he felt better. None of them showed any objective change.

Our work is summarized in the accompanying table.

None of the patients improved sufficiently to resume previous activities. However, sufficient

improvement was obtained to warrant the use of this drug in the treatment of paralysis agitans. Case 6 most nearly approached the improvement reported by Jolliffe. This patient's improvement was rather startling. Chair-ridden and helpless for two years, he is now able to walk almost erect. Though his tremor is still present to a marked degree, he is now able to feed himself.

Of the ten patients, only one (Case 1) failed

to respond in some measure. The others reported improvement out of proportion to the objective findings demonstrated. The improvement consisted of a feeling of relaxation, decrease of spasticity, disappearance of pain and increased feeling of well-being. It was common for them to report that following the injection they were able to take a "restful nap." Although no objective change in tremor was noticeable, the patients reported that they had better control of their muscles (arms and legs moved with more assurance, and the tremor was not so annoying).

Cases 1, 4, 8 and 10 are postencephalitic. These showed no objective improvement though cases 4, 8 and 10 made enthusiastic reports about their improvement. Cases 2, 5, 6, 7 and 9 made definite objective improvement as evidenced by improved posture, decreased rigidity, more elastic gait and rapid locomotion. They enjoyed walking to the clinic where previously it had been necessary for them to take the streetcar. More expression appeared in their faces. The general condition of these patients improved as shown by substantial weight gains. The patient in Case 3 was bedridden, her response, which was slight, was nevertheless definite. Her penmanship became legible. She was able to lift herself to a sitting position. She never progressed beyond this point.

Comments

We are in agreement with Jolliffe, Baker and Zelig that the postencephalitic paralysis agitans cases do not respond to B₆ therapy.

At the beginning of this study, the medicine was given intravenously. Several times the comment was made that the improvement was due to the fact that the examiner was giving personal attention to these patients which they had not previously received. Therefore, in an attempt to eliminate the influence of suggestion, vitamin B₆ was given subcutaneously by the nursing staff, which personnel changed periodically. No untoward reaction followed any injection.

Summary

It is our opinion that vitamin B₆ in the treatment of idiopathic paralysis agitans decreases pain and rigidity and increases general well-being. Whether this is due to specific action of vitamin B₆ in paralysis agitans or to a coincidental vitamin B₆ deficiency is not known. Though this improvement may not be a great achievement, it is very worth while in a disease of this chronicity. Inasmuch as response is very rapid, a short therapeutic trial of vitamin B₆ is justified in any case of idiopathic paralysis agitans.

Cases taken from the Neuropsychiatric Service of Minneapolis General Hospital, J. C. Michael, M.D., Chief of Staff. Vitamin B₆ (Hexabione) Pyridoxine Hydrochloride furnished by Merck & Co., Inc., Rahway, New Jersey.

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PRESENT-DAY TREATMENT OF PNEUMONIA

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OLDER physicians, I am sure, remember the type of pneumonia with which we had to deal before the first world war. It was pneumococcic in origin and lobar in type. In general, its behavior was eminently respectable. By this, I mean that the mortality incidence was low and complications, such as empyema, were infrequent.

Recovery followed crisis and this generally occurred in the seventh to ninth day of illness.

In 1918 and 1919, the last influenza pandemic occurred. With this, there were many respiratory complications and the so-called influenza pneumonia was prevalent. This was a nonpneumococcic and bronchial pneumonia. In the decade following the war, the pneumococcus could rarely be found. In some instances *Hemophilus influenzae* (Pfeiffer's bacillus) did appear to be the

From the Division of Medicine, The Mayo Clinic, Rochester, Minnesota. Read before the Annual Meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 29, 1941.

infecting organism. More frequently, some type of streptococci was demonstrated.

During the war of 1914 to 1918, high concentrations of oxygen first came into general therapeutic use. Oxygen therapy was really the first important advance made in the modern treatment of pneumonia. It still remains the best sheet anchor in many instances. Every patient who is cyanotic or has other evidence of anoxemia should receive oxygen in addition to the other treatment employed. The first effective use of oxygen was by the nasal catheter. Later, expensive oxygen chambers were built by many hospitals. At present the oxygen mask or tent has supplanted these. Although many patients tolerate the mask or nasal tube well, the tent, when available, is the preferable method of administration.

Oxygen is equally, or even more, valuable in treatment of acute pulmonary edema. For this condition, a 100 per cent concentration under increased pressure is used. In many instances this procedure carried out for twenty to thirty minutes will cause much improvement. In cases in which satisfactory improvement does not occur, aspiration through the bronchoscope must be considered. This procedure frequently completely frees a lung of all evidence of edema when oxygen treatment has not proved satisfactory.

During the past decade, pneumococci again have been demonstrated with increasing frequency as the causative organism in cases of pneumonia. With increasing frequency also, the lobar type of consolidation again has been seen. In this connection, however, I wish to mention the non-pneumococcic, so-called virus type of pneumonia which seems to be becoming more prevalent. I shall refer to this type again.

Also in recent years, instead of four groups of pneumococci, some thirty-one strains have been isolated and for all of them typing serums are available. For more than half of them, satisfactory antisera have been developed. Owing to the more recent development of extremely valuable chemotherapeutic agents, we are likely to forget the extreme importance of serum therapy in the treatment of pneumonia. Nevertheless, pneumococcic antisera must be considered the second great advance made in the modern treatment of pneumonia. Although the high cost, together with the brilliant results obtained with chemotherapeutic agents, has largely curtailed the use of antiserum, it remains an agent of much value. Its use in combination with chemotherapy

must be considered in all cases of pneumonia in which there is a severe infection of the blood stream. It continues to be so used routinely in Baltimore and some other cities in which the serum is supplied by the municipality without cost to the patient.

With these introductory remarks, I come to the most recent and, unquestionably, the greatest advance that has been made in the treatment of pneumonia. I refer, of course, to chemotherapy.

Chemotherapy

Sulfanilamide first became available to the profession as a whole for the treatment of pneumonia in 1936. I am sure all physicians have had cases in which the effects of its administration seemed miraculous. As a result, it is expected that the clinical manifestations of patients will be greatly modified and completely controlled almost in a matter of hours. However, it was found that toxic manifestations were frequent and that many patients were intolerant to the drug, no matter whether given by mouth or intravenously. The most common manifestations were anorexia, severe headache, protracted nausea and vomiting. Psychotic manifestations also occurred. The complications caused by toxicity will be considered in greater detail when discussing sulfapyridine.

These features led to continued search for therapeutic agents which had even greater physiologic effect and fewer toxic manifestations. Although a number of preparations have had some trial clinically, sulfapyridine and sulfathiazole have recently been used almost exclusively. Both have other and valuable functions, but I will consider them only in so far as they are used in the treatment of pneumonia.

Sulfapyridine is definitely more efficacious in the treatment of pneumonia than sulfanilamide, but toxic manifestations are about as frequent with the former as with the latter, and nausea and vomiting are even more common. Sulfathiazole is much less toxic and is of value in the treatment of pneumonia, but its physiologic effect is considerably less than that of sulfapyridine. Both drugs are eliminated rapidly, and when given orally the interval between doses must not be more than four hours. When the soluble sodium salt of either drug is used intravenously, the interval between doses should not be greater than eight hours. If oral administration is possible, the concentration in the blood of the free

drug can be better maintained by oral doses between intravenous doses. Satisfactory concentrations for both drugs are generally between 3 and 6 mg. per 100 c.c. of blood. Occasionally, a concentration of 10 mg. per 100 c.c. of blood seems more effective.

In administering either drug, in most instances an initial dose of 2 gm. followed by 1 gm. at intervals of four hours seems sufficient. When the sodium salt has been used intravenously, it has been my practice to give 50 c.c. of a 5 per cent solution at intervals of eight hours.

The toxic manifestations following the administration of sulfapyridine are similar to those following the use of sulfanilamide. Nausea and vomiting are frequent; central nervous system disturbances such as vertigo and headache are common; and in about 4 per cent of cases sufficient mental disturbance occurs to be classified as psychosis. In this connection, I wish to state that Dr. Bullowa, with whom I have recently had the opportunity of discussing this subject, informed me that many of the patients with pneumonia who entered the hospitals in New York were alcoholics. In his opinion, the psychosis was the result of malnutrition and avitaminosis; in many cases the mental symptoms cleared rapidly after the administration of thiamine chloride and nicotinic acid.

Cyanosis is generally present in some degree but rarely necessitates withdrawal of the drug. Rashes and drug fever are not uncommon. In case of the latter condition, it is sometimes difficult to decide whether withdrawal or larger doses are indicated. Toxic hepatitis with jaundice has been reported. I have seen at least two cases, however, in which such a condition existed from other causes. In each instance, sulfapyridine was administered in spite of the hepatitis and recovery followed. It also must be noted that sulfapyridine is a hemolytic agent. Both acute hemolytic anemia and agranulocytosis have been reported after its use. This necessitates continuous and careful blood tests. Wherever possible, at least a leukocyte count and a determination of the concentration of the drug in the blood should be made daily.

Finally, no evaluation of possible toxic manifestations is complete without considering the genito-urinary tract. Hematuria may occur, and in most instances this warrants withdrawal of the drug. At least one case has been reported in which formation of multiple renal calculi oc-

curred. Cases occasionally are encountered, also, in which urinary suppression occurs as the result of excessive precipitation of crystals in the renal pelvis. Renal function frequently can be restored satisfactorily by ureteral catheterization and lavage of the renal pelvis. An attempt should be made to maintain a sufficient intake of fluid to give a urinary output of at least 1,500 c.c. In addition, it is probable that the administration of alkalis lessens the possibility of crystalline precipitation.

Dr. Bullowa recently stated that in 500 cases in which chemotherapy was employed he had seen three instances of coronary infarction which in his opinion was the result of chemotherapy. He expressed the belief that chemotherapeutic agents do cause vascular damage and that cerebral damage may also occur.

There is always some question as to when and in what manner chemotherapy may be safely discontinued. Manifestly, with the institution of therapy, it is essential to obtain a satisfactory concentration in the blood in the shortest possible time. It is more difficult, however, to decide when, after the patient's temperature has returned to normal, it is safe to discontinue administration of the drug. To do so too soon may cause a return of fever with increased clinical manifestations. A postfebrile period of seventy-two hours has been suggested. In many instances, it is difficult to persuade the patient to continue medication this long. In my own experience, I do not remember any recurrence of fever after an afebrile period of forty-eight hours. I also have seen administration of the drug discontinued after an afebrile period of twenty-four hours without ill effect, but this cannot be depended on. Some clinicians prefer a tapering-off process when the drug is withdrawn. Dr. Bullowa and others, however, have expressed the belief that such a procedure is unnecessary and that the drug may be withdrawn suddenly after a satisfactory reaction. I personally prefer this method.

Recently, I visited some of the eastern clinics and while there had the privilege of discussion with some of the clinicians in Baltimore, Philadelphia and New York. I was particularly interested in the work of Drs. Marshall, Long and Longcope in Baltimore, of Dr. Flippin in Philadelphia, and of Drs. Bullowa and Ensworth in New York. They were all engaged in trying to determine the value of a new drug, sulfadiazine, in the treatment of pneumonia. This drug has

recently been placed on the market and is now available. A clinical study of it in a rather small number of cases of pneumonia also has been made at the Mayo Clinic. Because our supply was small, I have employed it only in those cases in which the other chemotherapeutic agents were not tolerated satisfactorily and in several instances in which nausea and vomiting were present. When treatment with sulfadiazine was instituted, the nausea and vomiting subsided and the patients went on to satisfactory recovery.

The consensus concerning sulfadiazine is that it is just as efficacious as sulfapyridine in the treatment of pneumonia and its action is similar. It is, however, definitely less toxic. In only 5 per cent of all the cases in which this drug was used have nausea and vomiting occurred. Headache also is infrequent. Rashes, drug fever, hematuria with crystal formation and psychosis have been noted, but are rare. Although hemolysis may occur, it is only with long-continued administration of the drug and is not seen until after ten days. Furthermore, it has no deleterious effect on the leukocytes. In one of Dr. Bullowa's cases, leukocytes numbered 2,000 per cubic millimeter of blood when treatment was instituted. The number promptly returned to normal during treatment.

Sulfadiazine is excreted more slowly than sulfapyridine and sulfathiazole, for which reason it is easier to maintain a satisfactory concentration in the blood. Accordingly, oral administration may be at intervals of six instead of four hours, and intravenous administration of the sodium salt, if used, could be at intervals of twelve instead of eight hours. The concentration in the blood is higher than with the other drugs. A satisfactory level is from 10 to 15 mg. per 100 c.c. The most satisfactory dosage has not been determined, but will probably consist of an initial dose of 2 to 4 gm., with doses of 1 gm. each at intervals of four to six hours.

So-called Virus Pneumonia

No consideration of the treatment of pneumonia seems complete without reference to the so-called virus type of the disease. Since 1935, many articles have appeared in the literature describing fairly large series of cases in which there was an atypical bronchial type of pulmonary consolidation and in which the infecting organism could not be determined. There were

in all cases, however, certain features in common such as a long period of incubation, a diffuse bronchial type of inflammation, and in many instances no organisms could be recovered from the sputum or nasopharynx. Furthermore, in two of Reimann's cases an unusual filtrable virus was obtained: in one, from the nasopharynx, and in the other, from the blood. In addition, Adams and Beach recently reported this disease among infants. Characteristic cytoplasmic inclusion bodies were found in the epithelial cells of the bronchi of those infants who died of the disease. Although the etiologic factor has not been determined definitely, the clinical features all lead to the assumption that this type of pneumonia is a clinical entity and that the causative factor is a filtrable virus. Fortunately, as the disease has been shown to be decidedly infectious, in most cases it runs a mild clinical course. Nevertheless, this is not always true; in a fair percentage of cases, the course is protracted and severe. In a few cases death occurs.

Recently, Long of Baltimore epitomized the salient points of virus pneumonia in a terse and graphic manner about as follows: Virus pneumonia begins like influenza with low-grade temperature and general malaise. While there is an irritative cough there is little or no expectoration. If present, it may be blood-tinged. In most instances no organisms are obtainable from it. Physical examination reveals few abnormal findings even when roentgenograms of the thorax reveal definite pulmonary infiltration. Only when the process is retrogressing are physical signs of consolidation manifest. Convalescence is frequently protracted and chemotherapy of no value.

One case has been reported in which convalescent serum seemed of value.

I have recently seen several cases that were classified as a virus type of pneumonia. In two of them, the disease was both protracted and severe. In one the constant administration of oxygen was required for three weeks. In the other, it was used almost continuously for four weeks. In neither case was chemotherapy of any benefit. In one, such medication was followed by the rapid loss of 1,500,000 erythrocytes per cubic millimeter of blood. In one case, there was considerable mental confusion, and in the other, definite psychosis occurred after the patient had become afebrile and lasted for a week. Both of these patients made complete recoveries. I cite these cases to show that so-called virus pneu-

monia is not infrequent in Minnesota and that all must be on the watch for it.

Summary and Conclusions

In the modern treatment of pneumonia, three advances have been made: (1) the use of oxygen therapy; (2) the development of specific anti-serums and (3) chemotherapy.

The most valuable chemotherapeutic agents now available are sulfapyridine and sulfathiazole. The indications are that sulfadiazine may be of even greater value.

Both 100 per cent concentration of oxygen and bronchoscopic aspiration are of great value in the treatment of pulmonary edema.

The so-called virus type of pneumonia is increasing in frequency and all physicians must be on the watch for this condition. Chemotherapy is of no value in its treatment. Convalescent serum may be proved of value. At present, oxygen therapy is the treatment relied on in this type of pneumonia.

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THE USE OF CHILLED BLOOD, BLOOD PLASMA AND SERUM

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Chilled Blood

AT THE turn of the present century, Landsteiner discovered three of the four blood groups. Decastello and Sturli added the fourth group in 1902. As a result of these discoveries, the incidence of severe reactions to transfusion has decreased greatly. Today, transfusion of blood is an accepted and valuable therapeutic measure.

In April, 1914, Hustin of Brussels published an account of the use of a mixture of sodium citrate and glucose as preservative agents for blood. Agote^{1,2} of Buenos Aires also used sodium citrate as a preservative agent; the first notice of his use of sodium citrate appeared on November 14, 1914. Lewisohn published his method using sodium citrate in January, 1915. Weil and Rueck separately presented their data concerning the use of sodium citrate early in this same year.

Rous and Turner, in 1916, found experimentally that preserved erythrocytes could be transfused and that they continued to function normally. Robertson, in 1918, advocated the storage of blood; dextrose and sodium citrate were used as the preserving agents.

Lundy and associates,¹⁹ used stored chilled blood in 1935. The blood stored in the refrigerator was for emergency purposes or was blood withdrawn from relatives to be used at a later time when the relatives would not be available as donors. The "blood bank" was described by Fantus in 1937.

The obvious advantages of having chilled blood of a known blood group which is negative to serologic tests for syphilis always available are well known. DeGowin and Hardin advised the addition of glucose in order to lengthen the possible storage time of the blood. They found that hemolysis was present in any mixture after five days, but that the addition of glucose kept hemolysis minimal for thirty days.

There is a marked shift of the potassium ions from the erythrocytes to the plasma after five days of storage.²⁹ Prothrombin decreases with the storage of blood.³⁶ Bull and Drew pointed out that the number of leukocytes decreased 50 per cent in the first twenty-four hours of storage and that after sixteen days of storage the leukocytes practically were disintegrated. Levine demonstrated by means of the specific factors M and N that cells stored three, ten and fourteen days have a survival time of eighty, sixty and twenty days, respectively, after transfusion, whereas freshly drawn cells have a survival time of ninety-five days or more after transfusion.

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Injectations of chilled stored blood for the possible beneficial effect of leukocytes or platelets or to overcome a prothrombin deficiency are of questionable value.

In the annual report for 1940 of the Section on Anesthesia of the Mayo Clinic,²⁰ it was disclosed that the majority of blood used in transfusions was blood that had been in the refrigerator for one or more days. The incidence of reactions was found to be slightly less when chilled blood was used than when blood was withdrawn and used immediately. The advantages of always having blood in storage have been pointed out by many writers. It is a good plan to have a minimal yet adequate emergency overnight supply always available. In this way the supply can be replenished almost daily, the chilled blood never becomes many days old and patients who are in need of leukocytes or who have a deficiency of prothrombin can receive a transfusion of reasonably fresh blood which still has a satisfactory percentage of the constituents of freshly drawn blood. If an emergency transfusion is required in cases of severe hemorrhage, the patient receives the benefit of little delay, as blood from universal donors always is on hand.

Plasma and Serum

In 1812, Legallois suggested the preparation of some artificial fluid medium which could be used for perfusion experiments. The need for a satisfactory blood substitute is apparent and has stimulated many workers in various countries. An ideal blood substitute would be one that is readily available, stable for long periods, easily stored, transportable without damage to its properties, and furthermore one that will remain within the circulatory system and will not produce any untoward reactions.

Crystallloid solutions, although used extensively as blood substitutes, are not entirely satisfactory because they leave the circulatory system. Solution of acacia was used frequently during the War of 1914 to 1918, but it is not used as much now as formerly because of the ready availability of blood and plasma.

In 1918²⁷ it was considered that infusions of serum or plasma combated hemorrhage. Serum was procured by allowing blood to clot and then withdrawing the fluid portion. To obtain plasma, whole citrated blood is either centrifuged or al-

lowed to stand several days in order to allow the cells to settle out. The supernatant blood plasma is then drawn off. Large amounts of serum or of plasma may be pooled.

Levinson and co-workers stated that large amounts of pooled serum may be administered without untoward reactions. Other writers⁴ do not share this opinion. Plasma may be stored in either the liquid or powder form for long periods.³⁴ If large quantities of plasma need to be stored for long periods or for ease in transportation, the process of drying plasma has proved its value in saving of storage space. When the powdered plasma is redissolved, it seems to be as beneficial therapeutically as it was in the primary liquid state.

There are various ways of drying plasma, for instance, the lyophil process, the cryochem-process or the method whereby it is dried at an increased temperature.^{8,10,11} Blood plasma, regardless of the donor's blood group, may be given to any recipient, regardless of his blood group.³² The pooling of plasma from donors of different blood groups seems to suppress the iso-agglutinins. Amberson³ stated that blood plasma is nonantigenic and therefore less liable to cause anaphylactic reaction.

Plasma is being used in an increasing number of conditions.³¹ It may be that investigations being carried on will reveal that blood plasma may replace the use of whole citrated blood in many conditions in which blood is being used now. At present, however, the more common cases in which plasma is used are secondary shock, hemorrhage, burns, edema and states of hypoproteinemia.

Strumia³³ and his associates made the statement that plasma appears to be the ideal material for the permanent reestablishment of proper circulation in cases of secondary shock. Because of the content of protein and the high colloidal osmotic pressure, blood plasma does not leave the circulation as crystalloid solutions do; therefore, it is possible to regulate the volume of circulating blood more readily when blood plasma is used. Mahoney pointed out two advantages of using plasma in cases of secondary shock, namely, lack of necessity of blood grouping and dilution of the hemoconcentration. It was also stated that in the treatment of experimental shock in the animal, the use of lyophilic plasma was more efficacious for raising the blood pressure than

blood, physiologic solution of sodium chloride or solution of acacia.

In cases of shock following severe hemorrhage, the loss of circulating erythrocytes is of minor importance if the volume of circulating blood is kept at a proper level. The fatality accompanying or following acute hemorrhage is not due to the loss of erythrocytes but to inadequate circulation, tissue anoxemia, increased permeability of capillaries and shock caused by the loss of circulating fluid.^{17,23} Sudden massive hemorrhages produce oligemia and primary shock. The chief need in this condition is to replace fluid in order to maintain the volume of the circulating blood. Composition of the fluid is unimportant. Hoitink demonstrated that a 0.9 per cent solution of sodium chloride was as good a substitute for blood in this condition as any other fluid. However, secondary shock following severe hemorrhage demands the addition of a more permanent fluid because of the loss of plasma through the increased permeability of capillaries. Levinson and associates¹⁷ advocated serum; others are of the opinion that plasma is the fluid of choice. If whole blood were readily and quickly available, it probably would be the best restorative in cases of severe hemorrhage, but if whole blood is not available, either serum or plasma is a valuable therapeutic agent in maintaining the volume of circulating blood necessary for life.

Minot and Blalock described the changes of the volume of plasma and concentration of protein in a dog during development of circulatory failure following a burn. Thirty-two per cent of the plasma volume and 35 per cent of the plasma protein had been lost at the end of six hours; there was a corresponding hemoconcentration. These changes continued until 61 per cent of the original volume of plasma and 50 per cent of the total circulating protein remained. These authors stated that blood plasma is probably the fluid of choice for the restoration of the plasma volume.

Starling³⁰ demonstrated many years ago that the osmotic pressure of plasma crystalloids, although large as compared with plasma proteins, still is of minor importance in keeping fluids within the blood vessels. As the concentration of plasma protein falls from its normal level of 7 to 7.5 gm. per 100 c.c., the osmotic pressure exerted by the plasma is reduced and fluid will

leave the vascular system and produce, at first, a latent and later an evident edema. It has been demonstrated that plasma administered in such cases will decrease edema.

In cases of hypoproteinemia, Ravdin disclosed that repeated small transfusions of plasma over a long period are more efficacious than large transfusions of plasma within a short period.

Conclusions

Chilled blood has proved of value, for the percentage of reactions has been demonstrated to be slightly less than when fresh blood was used for transfusion. Blood plasma and serum seem to be satisfactory substitutes for blood in certain cases of secondary shock, hemorrhage, burns and so forth. Either of these may be stored readily and transported easily. Both may be dried, powdered and redissolved for use. The results obtained from the transfusion of the redissolved powder seem to be favorable to the patient. Continued investigation and repeated clinical use of these agents should render more data available in regard to their respective merits.

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PHARMACOLOGICAL SHOCK THERAPY AT ST. PETER

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SINCE the introduction of pharmacological shock therapy by Sakel and von Meduna there have been many reports of its use in this country and abroad. While we do not have a large number of patients to report on, we should like to add ours to those in the literature.

St. Peter State Hospital began insulin treatment in December, 1936, approximately six months after its introduction in this country and we have by now treated 160 individuals. Metrazol treatment was first used at St. Peter in December, 1937, and we have to date treated ninety-nine.

The criteria for our selection of those to be treated have changed. In the beginning only schizophrenics were treated either with metrazol or insulin, but in recent months we have treated these patients mostly with insulin and reserved metrazol treatment for manic-depressive and involutional psychotics. At first we paid little attention to the duration of the disorder, but later as we learned of the importance of the time element from our own and others' experience, we attempted to limit treatment to those of shorter duration. We have treated a number of considerable duration at the insistence of relatives, even

though we felt that the prognosis was not particularly good.

A patient selected for insulin or metrazol therapy receives a careful physical and laboratory examination. In ninety cases we have secured sugar tolerance tests before and after therapy for comparison. We plan to report an analysis of these figures at a later date.

When therapy is started, the fasting patient is given, early each morning, a progressively larger amount of insulin until shock doses are obtained. They are permitted to remain in shock one to one and a half hours and termination is by either orally or intravenously administered glucose.

In contradistinction to most hospitals we use a diet of fixed caloric value. We have felt that this is advisable in that the insulin dosage can be better regulated and with the relatively restricted diet (1600 calories) such as ours, smaller amounts of insulin are necessary to produce hypoglycemic shock. Despite the limited caloric intake, ninety-nine of our patients gained weight.

The average number of shocks administered was approximately sixty and the average dose for men was eighty-one units of insulin and for women sixty-seven.

The detailed results are shown in Table I.

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PHARMACOLOGICAL SHOCK THERAPY--FREEMAN, NISSEN AND MILLER

TABLE I. RESULTS OF INSULIN TREATMENT IN PATIENTS AT THE ST. PETER STATE HOSPITAL

Duration of Symptoms before First Treatment	Total Number of Cases	Number of Cases Home	Dementia Precox— Simplex	Dementia Precox— Hebephrenic	Dementia Precox— Catatonic	Dementia Precox— Paranoid	Manic- Depressive Manic	Manic- Depressive Depressive	Manic- Depressive Mixed	Psychoneurosis Hypochondriasis	Psychoneurosis Anxiety	Psychosis with Epidemic En- cephalitis	Paranoia	Alcoholic- Behavior Problems	Alcoholic Pseudoparesis
Less than 6 months															
Markedly Improved	28	28	1-M	2-M 5-F	6-F	4-M 3-F	4-F	1-M	1-F						1-M
Moderately Improved	7	6		2-M 1-f	1-F	1-M 1-F	1-M								
Slightly Improved	2	2		1-M		1-M									
Unimproved	6	1		1-m 1-F 1-f		3-m									
6 to 12 months															
Markedly Improved	9	9		2-M 2-F		2-M 1-F	1-F	1-F							
Moderately Improved	3	3				2-M 1-F									
Slightly Improved	4	3		1-F	1-m	2-M									
Unimproved	10	0		2-m 1-f	3-f	2-m 2-f									
1 to 2 years															
Markedly Improved	6	6		1-M 1-F	2-M 1-F	1-F									
Moderately Improved	3	3		1-F		1-M 1-F									
Slightly Improved	2	2	1-F			1-M									
Unimproved	16	2	2-m		1-M 1-m 3-f	1-M 3-m 3-f	1-m						1-m		
Over 2 years															
Markedly Improved	5	5				1-M 1-F	1-F					1-M		1-M	
Moderately Improved	7	6	1-M	2-F	1-m	2-M 1-F									
Slightly Improved	5	5	2-M	2-M		1-F									
Unimproved	47	4	1-M 3-m	10-m 14-f	1-m 3-f	2-M 6-m 5-f				1-F	1-m				

m—males in hospital, M—males at home, f—females in hospital, F—females at home.

From this it is seen that eighty-two men and seventy-eight women have been treated. One hundred and forty-three suffered from dementia precox and eleven from manic-depressive psychoses.

Of the one hundred and forty-three dementia

precox patients treated, seventy-one or 49 per cent are at home, and of these thirty-six are markedly improved. Of the eleven manic-depressive psychotics, ten are at home markedly improved and apparently recovered. The eleventh died of pulmonary tuberculosis.

As others have reported, there is a significant difference in results obtained in dementia precox depending on the duration of the disease. For instance, of the thirty-five dementia precox cases of less than six months' duration, twenty-nine are at home and twenty-one of these are markedly improved. Of the twenty-four of six to twelve months' duration thirteen are at home with seven markedly improved. In cases of from one to two years' duration thirteen out of twenty-five are home and six are markedly improved; in those of over two years' duration sixteen out of fifty-nine are home but only two are markedly improved. It is noted that the largest differences in results occur between the group of less than six months' duration and those of six to twelve months and again between the one to two years' duration group and that over two years. There is but slight difference between results obtained in the six to twelve months' classification and the one to two years' classification.

Of the seventy-four male dementia precox patients, thirty-eight are at home and of these fifteen are markedly improved; while of the sixty-nine female dementia precox patients thirty-three are at home and twenty-one markedly improved. There is a significant difference in the number of markedly improved in each group. This is probably explained, at least partially, on the basis of the difference in duration, as the median duration for male cases is forty-four weeks and for the female twenty-eight weeks.

We have had no deaths from insulin therapy. We have had one patient in which we felt that insulin treatment was a factor in the exacerbation of a latent pulmonary tuberculosis which eventually resulted in death. We have had sixteen cases of prolonged coma during insulin treatment. We made this diagnosis if after the usual amount of carbohydrates plus the intravenous injection of at least 50 c.c. of 50 per cent glucose the patient remained comatose. The condition is characterized by normal or elevated blood sugar, coma, motor irregularity, elevated temperature and respiratory irregularities. The duration of the coma varied from a few hours to about forty-eight hours and all eventually recovered.

Dr. Rossen of the Hastings State Hospital has kindly allowed us to include the results of his experience with insulin therapy. His results are of particular value in two respects: (1) he has

used a control group as far as technique is concerned; and (2) all his patients, except one, have been institutionalized for five or more years. His report includes eighty-four patients, forty-six receiving insulin and thirty-eight controls. His method of controlling the technique was as follows: Both groups of patients were on the same ward, received the same diet, the same nursing attention, and differed only in that one group received insulin and the other group received injections of sterile water. His results of insulin-treated patients are as follows: 72 per cent unimproved, 15 per cent moderately improved and 13 per cent greatly improved. Of the controls, 97 per cent unimproved and 3 per cent moderately improved.

Metrazol is given biweekly to the fasting patient. Various precautions are taken, such as placing a towel in the mouth to avoid biting the tongue, restricting the movements of the extremities and preventing extreme opening of the mouth to avoid dislocations.

The initial intravenous dose is 4 c.c. of a 10 per cent solution. If this fails to produce a convulsion in three minutes, a second dose of 5 c.c. is given. (We wait three minutes as this is the longest interval between injection and convulsion we have encountered.) If the second attempt is also unsuccessful, a third dose of 6 c.c. is given in another three minutes. With one exception this is the largest amount we have found necessary to produce the initial convulsion. The average number of convulsions induced in the men was twenty-one and in the women eighteen.

We have never been unable to produce a convulsion, although successive treatments commonly require an increased amount of metrazol. The largest intravenous dose necessary has been 11.5 c.c. In a few women the drug was given intramuscularly because of unsuitable veins. In these the initial dose was 8 c.c. not repeated the same day, and increased 2 c.c. if the preceding injection was unsuccessful. The largest intramuscular dose necessary has been 30 c.c. The seizure, if it occurs, takes place from ten to forty-five minutes later. We have observed as many as three convulsions, several hours apart, following a single intramuscular use of the drug.

Two patients with dementia precox were given camphor intramuscularly in February, 1938. Both were paroled home as moderately improved, one

after having eighteen convulsions and the other after seven. Both relapsed and are in other state hospitals at present.

give the intravenous injection. Following the suggestions of Bennett we have given hyoscine hydrobromide one hour before treatment in doses

TABLE II. RESULTS OF METRAZOL TREATMENT IN PATIENTS AT THE ST. PETER STATE HOSPITAL

Duration of Symptoms before First Treatment	Total Number of Cases	Number of Cases Home	Dementia Precox— Simplex	Dementia Precox— Hebephrenic	Dementia Precox— Catatonic	Dementia Precox— Paranoid	Manic- Depressive Manic	Manic- Depressive Depressive	Involutional Psychosis	Psychosis with Metabolic, etc., Post-partum	Psychoneurosis Anxiety	Psychosis with Mental Deficiency
Less than 6 months												
Markedly Improved	15	15		1-M	1-M 2-F	2-F	4-F	1-F	3-F	1-F		
Moderately Improved	5	5		1-F	2-M		1-M				1-F	
Slightly Improved	1	1			1-M							
Unimproved	6	0	1-m	2-m	1-m 1-f				1-f			
6 to 12 months												
Markedly Improved	2	2						1-F	1-F			
Moderately Improved	1	1						1-F				
Slightly Improved	1	1						1-M				
Unimproved	4	2			1-F 1-f	1-F	1-f					
1 to 2 years												
Markedly Improved	5	5			1-F	1-F		1-F	2-F			
Moderately Improved	4	3			1-M		1-f	1-M 1-F				
Slightly Improved	0	0										
Unimproved	7	0	1-f	2-m 3-f		1-m						
Over 2 years												
Markedly Improved	2	1							1-F 1-f			
Moderately Improved	4	3				1-M 1-F		1-M 1-f				
Slightly Improved	1	0				1-m						
Unimproved	41	2	1-m 1-F 3-f	6-m 13-f	1-m 1-F 5-f	1-m 5-f	2-f	1-m				1-f

m—males in hospital, M—males at home, f—females in hospital, F—females at home.

Some degree of apprehension regularly appears after the first one or two treatments. In a few patients this has been severe enough to provoke sufficient resistance to make it difficult to

of 1/150 to 1/100 grain to three patients. This has materially helped in allaying anxiety, producing greater coöperation, and has not affected the dosage required to produce a convulsion.

As seen in Table II twenty-nine men and seventy women have received metrazol to date, of whom forty-one are now at home. Four of these, all in the schizophrenic group, were considered unimproved when they left the hospital, and released because their relatives were able and willing to provide the degree of supervision that seemed necessary. Two were thought to be only slightly improved when they left, while the remaining thirty-five were considered moderately to markedly improved. When we examine only the thirty-five whose duration of symptoms was one year or less, twenty-seven are at home, six in the hospital, and two dead. Of those at home in this group, two were considered unimproved, two only slightly improved, and the rest moderately or markedly improved.

In comparing the affective and schizophrenic groups we find that of twenty-eight patients treated in the former group, twenty are at home, seven still in the hospital, and one dead; while in the latter or schizophrenic group, nineteen are home (four unimproved) out of a total of sixty-eight treated, forty-seven are in this or other hospitals, and two are dead.

Nine patients with involutional melancholia received metrazol. One of these did not complete the treatment as she died of pneumonia. One patient is still here but ready to leave as soon as we find a place for her. The remaining seven all went home as markedly improved.

Conspicuously poor results are to be noted in the schizophrenic group whose symptoms were of two years or longer duration. Of the forty who fell in this group, thirty-five are still hospitalized, four at home (two of these unimproved) and one is dead.

Three patients have died from causes not related to metrazol therapy.

Twenty-two of the patients receiving metrazol had previously been given insulin with no improvement. Eight of these are home and the remaining fourteen are unimproved.

A few patients who were markedly assaultive and disturbed showed considerable improvement in this respect although there was no essential change in their mental condition and they are listed as unimproved.

Dislocation of the jaw has been the most frequent complication and in all cases has been easily reduced. Dislocation of the shoulder occurred once, was readily reduced, and did not interfere

with subsequent therapy. Pain in the thoracic or lumbar region of the spine is an infrequent complaint. If it persists longer than several days we secure x-rays but have not encountered a definite compression fracture of the vertebrae.

It is to be noted that we have not called any of our patients recovered. However, the markedly improved group, especially in so far as the affective psychoses are concerned, can be considered clinically recovered. In the dementia precox patients the markedly improved have no clinical symptoms and most of them are making the same social adjustment as before the onset of their psychosis. In the slightly improved group the improvement has been mostly that of a better hospital adjustment and there has been essentially no change in their fundamental mental condition. In the moderately improved group the patients superficially approach normal but psychiatric examination reveals some degree of mental abnormality. Our results are as of our last knowledge of the patient, that is, at the time of parole or of our last follow up report. Our follow-ups were either in the nature of letters to the patients' relatives or of parole agents' reports. It is recognized, of course, that the condition of patients as reported by relatives is not particularly accurate. Of the eighty-five insulin patients who are now home we have had follow-ups on fifty-seven of them, and of the forty-one metrazol patients at home we have follow-ups on twenty-one.

We have counted as relapses all those who were markedly or moderately improved at the end of treatment and have subsequently regressed to an unimproved state. On this basis in the insulin series we have had eleven relapses in the men and sixteen in the women and in the metrazol series one man and two women. The difference in the number of relapses is explained at least partly by the fact that we do not have as many follow-ups on the metrazol cases and that metrazol treatment was started here a year later than insulin treatment.

The greatest defect in our data is the lack of a control group. A control group can either be controlled as to technique or as to selection of cases. The latter, of course, is most important. Because of this lack of a control group we cannot adequately answer the question "what would have happened to these patients if they had not received treatment?"

HEMATOLOGY OF PERNICIOUS ANEMIA

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WE ARE all acquainted with the classical symptoms of pernicious anemia, some of which are presented by patients with anemia due to other causes. What distinguishes pernicious anemia, however, is that it is a generalized disturbance with the phenomena of anemia (due to the lack of the so-called intrinsic factor in the gastric secretions) shared with glossitis, gastrointestinal manifestations, graying of the hair, and central nervous system disturbances.

There is a tendency, on the part of a busy practitioner, to avoid laboratory work unless trained assistance is available. However, the diagnosis of the particular type of anemia is important. Suppose one encounters a patient with a severe anemia, institutes liver, iron, and vitamin therapy, and finds there is incomplete response to this material. Then, it is necessary to retrace the steps in diagnosis with an altered blood picture. Possibly one will be forced to wait until the effects of treatment have worn off before being able to name the disease.

A middle-aged patient encountered with signs of anemia and a red count below two million and not suffering acutely from it, possibly has pernicious anemia. If, as a result of repeated red cell counts and hemoglobin determinations, the color index is found to be greater than one, this possibility is strengthened. Add to this a fasting gastric content with no free hydrochloric acid after histamine injection, and the diagnosis is even more likely. In order to make our decision more air-tight, however, it is wise to go further because this patient might be suffering from carcinoma of the stomach, leukemia, or cirrhosis of the liver.

In pernicious anemia there is a decrease in all of the formed elements of the blood—leukocytes, red cells, and platelets. To examine the qualitative changes in these cells, one should make several blood smears on alcohol-cleaned slides. After a Wright's stain, one will see a reversion to the fetal type of blood with large erythrocytes well filled with hemoglobin (macrocytes) and their megoloblastic precursors. There

will also be seen a great variation in the size of these cells (anisocytosis), irregularity in shape of some of them (poikilocytosis), and relative blueness of scattered red cells (polychromatophilia). One may see nucleated red cells (normoblasts). Some of these changes are signs of blood regeneration and others of degeneration. The signs of regeneration are most frequent during beginning remission and quite scarce during severe relapse. On the other hand, signs of degeneration are always present, being most marked during relapse. It is thought by most that the basis of the disease is that of failure of red blood cell maturation and by a few that the changes are attributable to increased blood destruction. Be that as it may, the red cells give us valuable information about the state of the patient's disease. Anisocytosis and polychromatophilia occur in rapid production of red cells. Before the developing red cell takes on hemoglobin, it contains a basophilic spongioplasm. The mixture of hemoglobin and the remains of basophilic spongioplasm takes a purplish stain, rather than the lighter red. Nucleated red cells are young, and their presence usually indicates blood regeneration. The cytoplasm of these cells may vary from basophilic, indicating no hemoglobin, to orthochromatic, indicating normal hemoglobin content. Poikilocytosis indicates degeneration of the affected cells and is most marked in severe anemias, notably pernicious anemia in relapse.

An increase in reticulocytes also indicates blood regeneration. Supravital staining is necessary for their recognition. A thin smear of 1 per cent brilliant cresyl blue in 100 per cent alcohol is made on a slide. After this is dry, a thin blood smear is made over it and immediate drying is prevented by placing the slide in a closed Petri dish over wet filter paper, and allowing it to stand five minutes. Young red cells which have not lost all their spongioplasm will be stained by this procedure, the strands of spongioplasm taking the stain. Normal blood contains 1 to 3 per cent of reticulocytes, and pernicious anemia in relapse shows similar percentage. Seemingly, this is a point against increased blood destruction, because in congenital hemolytic jaundice there is

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a considerable reticulocyte increase. Since polychromatophilia and reticulocytosis increase with remission of the disease, they are important in judging the effectiveness of therapy and will be referred to again.

Macrocytosis, or the predominance of large red cells well filled with hemoglobin, has been referred to before. There is a simple volumetric method to prove whether or not this is present—a determination of mean corpuscular volume. Put 10 c.c. of blood into a 15 c.c. graduated centrifuge tube containing 2 c.c. of 1.4 per cent sodium oxalate solution. Mix this by inverting and centrifuge for an hour at 2,500 revolutions per minute. Read the volume of packed red cells directly off the tube and record as the number of c.c. per 1,000 c.c. of blood. In order to determine the mean corpuscular volume in cubic microns, simply divide this volume of packed red cells by the red count in millions. Normal limits vary between 80 and 94 cubic microns, and the value for pernicious anemia blood will be around 130 cubic microns. This is a valuable calculation, but obviously the red count must be accurate.

Considering the white cells in the count and smear, one will find a leukopenia and a relative lymphocytosis, indicating an absolute decrease in granulocytes. Among these remaining granulocytes will be found a general increase in segmentation of the nuclei of the neutrophils and hypersegmentation of the nuclei of a few, the latter finding characteristic of pernicious anemia, although not absolutely diagnostic. This leukopenia may persist in the face of rather severe infection.

Megaloblasts are sometimes found in the smear of pernicious anemia blood, as well as in other cases of severe anemia. These are primitive nucleated red cells usually larger than normoblasts, containing a varying amount of hemoglobin in the cytoplasm. They are an independent cell line according to Downey, which is in no way related to the normoblasts except through the primitive myoblast. Their appearance is a sign of reversion to the embryonic state of blood formation and of severe demands upon the marrow, according to Downey. In the pernicious anemia patient megaloblasts may be absent from the blood stream, but they will always be found numerous in the marrow.

This leads to the matter of investigation of the bone marrow by sternal puncture, which

will be a help in diagnosis. One remembers that the red cells and granulocytes are produced normally in the red marrow situated in the vertebrae, ribs, sternum, diploë of the bones of the skull, and the proximal epiphysis of the femur and humerus of the adult. In the newborn, the cavities of all the bones are filled with red marrow. With advancing age, yellow fatty marrow replaces the red in all the cavities except those mentioned above. In pernicious anemia there is a reversion to the fetal state, and yellow marrow is replaced by red. In this so-called hyperplastic marrow, blood formation is not very effective. There is a slight increase in cells resembling myeloblasts but few resulting myelocytes. Megaloblasts are numerous, partially replacing normoblasts. There is a question whether these megaloblasts ever do form fully developed erythrocytes in relapse. These megaloblasts and myeloblasts are collected into syncytial masses, resembling the blood islands of embryonic blood formation. Under liver therapy there is a rapid maturation of the megaloblasts to erythrocytes, and no new megaloblasts are formed. Along with this, there is normoblastic hyperplasia. In complete remission the marrow is entirely normal. In a case which does not respond to liver therapy, the bone marrow may be aplastic and its examination lend some information. Erythrocytes in all stages would be few and lymphocytes would be comparatively numerous.

Because of the above-mentioned defects in blood regeneration in pernicious anemia, hemoglobin destruction is active. Seemingly the best explanation is that hemoglobin is formed in normal amount but is not used by the immature red cells. As a result of its excess, it is broken down in the usual manner to hematin and globin, these products appearing in increased amounts in the blood, just as they would in case of increased blood destruction. For an estimation of the extent of this, one must resort to chemical methods.

Bilirubin and hemosiderin are the main products of the breakdown of hematin. Bilirubin, an iron-free product, freely soluble in blood plasma and tissue fluids, is excreted mainly in the bile, some normally remaining in the blood serum to give it its light brown color. Bilirubin in the intestine is reduced to urobilinogen by bacterial action. Part of the urobilinogen is excreted in the stool and part absorbed into the blood stream, from which reëxcretion by the liver in the bile occurs. Normally, only very small amounts of

urobilinogen appear in the urine. Hemosiderin, an iron-containing pigment, is formed only intracellularly by phagocytes and identified by the Prussian blue reaction with potassium ferrocyanide and hydrochloric acid. This is a test for ferric iron.

The excess bilirubin formed as a product of this destruction of hemoglobin circulates in the blood, causing a yellow skin and subcutaneous fat and a yellowish blood plasma. This slight icterus causes an increase in the icterus index, from a normal of 4 to 6, to around 9. Therefore, a pale blood serum is against the diagnosis of pernicious anemia. So-called secondary anemias, of non-hemolytic origin, give a low icterus index. As a result of increase of bilirubin in the blood there is an increased excretion in the bile, resulting in an increased amount of urobilinogen formed in the intestine. An increased amount of urobilinogen is absorbed into the portal circulation and excreted by the liver in the bile. In case of overwhelming amounts of urobilinogen in the blood stream or of diminished liver function, an increase of urobilinogen may appear in the urine. Thus, in pernicious anemia, an increase of urobilinogen is always noted in the twenty-four hour stool specimen but no increase of urine urobilinogen occurs unless there is unusual hemoglobin destruction or diminished liver function. In line with the efforts of the body to con-

serve iron, the hemosiderin resulting from the excess hemoglobin destruction is deposited in the liver, spleen, and kidneys, and these granules often can be seen in post-mortem sections and identified positively by the Prussian blue reaction. When therapy has been started, these iron deposits are taken up and used by the bone marrow for maturation of the megaloblasts.

Keeping in mind the macrocytic nature of the anemia, the leukopenia with relative lymphocytosis, and the megaloblastic hyperplasia of the bone marrow, a clinching proof of the hematological identity of this disease is reticulocyte response to liver therapy. Give three daily injections of liver and observe the daily reticulocyte count. This count will rise by the third day and continue to increase until about the sixth day, along with a rise in red count and a slower increase in hemoglobin. The cases with the lowest initial red counts will show the greatest reticulocyte response, apparently because of the maturation of the large number of megaloblasts in the bone marrow. Hemoglobin destruction is also lessened, as is demonstrated by a lessening of the urobilinogen in the stool and a lowering of the icterus index.

In the above outline we have tried to mention the important features of the hematology of pernicious anemia. We wish to leave the impression that the clinical features of this systemic disease are of equal importance.

TUMORS OF THE PITUITARY GLAND

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INTEREST in ductless glands in general, and the pituitary gland in particular, has been on the increase during the last decade. We have known for several decades the effect of the hypodermic injection of the extract of the posterior lobe. We have also known that growth has been influenced largely by hormonal agents, generated by the pituitary gland, and more recently it has been discovered that gonadatropic hormones are generated by the anterior lobe of the pituitary gland (prolan A and prolan B). Still more recently, it has been proved that there are

a great number of other hormones thus generated, such as lactogenic hormone, thyrotropic hormone, diabetogenic hormone, pancreatotropic hormone, ketogenic hormone, adrenotropic hormone, parathyrotropic hormone, and others.

It was, however, the gross lesions of this small structure which first attracted attention, and only then was it realized what a wealth of interesting information regarding its function was lying there waiting to be extracted.

The anterior part is glandular in structure, and is developed, embryologically, from Rathke's pouch, an out-pouching of pharyngeal epithelium.

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The stalk, connecting this part of the pituitary with the pharynx, disappears, but embryonal rests may remain, and from these rests rare tumors, usually squamous-cell carcinomata, may develop in any portion of the vestigial track. The anterior part of the pituitary gland envelopes the posterior part in very much the same way as one's hand holds a tennis ball.

The posterior part, or the nervous structure, is developed from an entirely different source. It is developed from a down-growth from the floor of the third ventricle, and remains connected with its site of origin by a slender stalk or infundibulum. Through the infundibulum passes a narrow channel, which, in the opinion of some men, as Herring and Cushing, conducts the extract of the posterior lobe into the third ventricle, from where it is finally absorbed. The posterior portion is singularly uninteresting in structure. No nervous elements can be distinguished. It is composed of a mass of neuroglia with here and there a few small cells. No one would suspect from a study of this inert-looking structure that an extract prepared from it would be capable of producing the most dramatic physiological effects.

Microscopically, the anterior lobe, on the other hand, produces a very interesting picture. It is definitely granular in structure. It is made up of two main types of cells: chromophil and chromophobe. The former, which are by far the more numerous, have a granular cytoplasm which stains deeply. The latter, often known as the chief cells, which are few in number under normal conditions, are of small size and possess a scanty cytoplasm which stains faintly. The chromophil cells may again be divided into eosinophil and basophil, according to the staining reaction of their granules. If there develops an urgent demand for pituitary secretion, as in pregnancy, the small chromophobes increase in size but remain chromophobe and yield up their secretion as soon as formed. During pregnancy, sometimes the weight of this gland is doubled, such increase in weight being due, almost entirely, to a hyperplasia of the chromophobe cells.

At the very outset, one is faced with one remarkable fact: the anterior portion is to every appearance glandular, being made up of different kinds of epithelial cells which vary in their proportion under different physiological conditions, and yet an extract of this part is absolutely without any physiological effect. On the

other hand, the extract of the inert-looking posterior lobe produces, as before stated, the most startling results. This substance excites a contraction of plain muscle throughout the body, raising the blood pressure to a marked degree through a general arterial contraction (but relaxes the renal vessels, thus producing diuresis), also causes the uterus to contract violently, stimulates the secretion of milk, and, by greatly lowering the sugar tolerance, causes sugar to appear in the urine. Although it is not possible to accurately separate the functions of the two portions of the gland, we may say that the anterior lobe is concerned with growth, particularly the growth of the skeleton and the development of the sexual organs, whereas the posterior lobe appears to be concerned with carbohydrate metabolism, and, therefore, with the development of fat.

Pathological manifestations of pituitary disease may be grouped under the headings of hyperpituitarism and hypopituitarism. Hyperpituitarism can be a result of diffuse hyperplasia of the eosinophilic cells or of the basophilic cells, or of eosinophilic or basophilic or chromophilic adenomata. The effect upon the body is distinctly different in each.

Considering first hyperplasia of the eosinophilic cells, or eosinophilic adenoma, there are the following possibilities.

1. Hyperactivity, before ossification is completed, invariably results in some degree of gigantism. This is the type of individual that is exhibited in the side-shows of circuses. Every giant, at some stage, shows hyperplasia of the pituitary. This, however, at once introduces us to the fact that pure pituitary lesions are rare. Hyperfunction is often followed by hypofunction. A giant frequently shows symptoms of hypopituitary function, such as high sugar tolerance or sexual impotence. If the activity of the pituitary is maintained, there will be a low sugar tolerance and glycosuria. Many giants die of diabetes. When hyperfunction is still in evidence, the pituitary may be found to be much enlarged and the sella turcica shows a corresponding expansion, which can often be readily recognized by means of radiographs. Later in the disease, the pituitary may be greatly shrunken or converted into a cyst, but the telltale bony changes bear evidence of the former hyperplasia.

2. Hyperplasia, after ossification is complete, results in deformity of bones commonly called

acromegaly. This condition, first recognized by Pierre Marie in 1886 to be due to a disorder of the pituitary body, is characterized by great enlargement of the hands and feet, the bones in the face and lower jaw. Both the bones and the soft parts of the hands and feet participate in the enlargement. Symptoms of giantism may be present, indicating that the period of pituitary overactivity has antedated the cessation of ossification. In a word, then, giantism is the result of hyperpituitarism developed before ossification is complete. Acromegaly or deformity of the bones is the result of hyperpituitarism developing after ossification is complete, the cause of each being eosinophilic adenoma, or eosinophilic hyperplasia of the anterior lobe of the gland. The diagnosis of acromegaly is readily made when the changes are at all pronounced. The face is large, the frontal sinuses are prominent, the eyes are deep-set, the lower jaw is heavily undershot so that the lower teeth project beyond the upper ones. The teeth themselves are widely separated. The lips are thick, the tongue hypertrophied. The skin is thick and deeply porous, the hands and feet are huge and clumsy. One of the most characteristic features is the presence of exostoses on the phalanges of the fingers and a tufting in the terminal phalanx. This forms a striking picture on the x-ray plate.

The size of the pituitary adenoma, or the hyperplastic gland itself, can be frequently determined by x-ray of the sella turcica. There is destruction of the base of the sella, in addition to an upward distention of the membrane covering the pituitary.

Hypo-activity of the pituitary presents the Fröhlich's syndrome. The appearance of the individual suffering from hypo-activity of the pituitary is generally that of infantilism, in which there is a notable absence of development of the skeleton and the sexual glands and the secondary sexual characteristics do not appear. In addition to that, there is usually the development of obesity and high sugar tolerance. There is usually a mental torpor associated with this condition, with the patient ever ready to sink into slumber.

In diffuse hyperplasia of the basophilic cells, or basophilic adenoma, the picture is entirely different. Here we have Cushing's syndrome. This is characterized by amenorrhea in the female and sexual impotence in the male. Hirsutism develops on the face and trunk of females and the males of pre-adolescent age. The hair on the scalp is

thin, there is a loss of feminine curves in the female, and the voice becomes masculine. There is hypertension, a hyperglycemia, and an extreme exhaustion in some cases. It is further characterized by painful obesity of the face, neck, and trunk, but not the extremities.

This same syndrome is seen in tumors in other parts of the body, such as cortical tumors of the adrenal gland and in arrhenoblastoma of the ovary.

Diagnosis of primary hypophysial tumors is based on: (1) endocrine disturbances; (2) changes in the bones, as evidenced by radiographs, such as enlargement and destruction of the sella turcica, and occasionally an intrasellar shadow in the radiographs; (3) changes in visual fields and eyegrounds; (4) headaches and other signs of increased intracranial pressure.

The treatment of these tumors consists of surgical treatment and the use of the x-ray.

Dandy states that there are two approaches to the tumor: (1) the nasal route, and (2) a right or left frontal approach. He dismisses the operation via the nasal route as impractical and dangerous, and states that it can never be otherwise because of the route through which the operation is carried on. He uses avertin anesthesia, administered rectally, and the frontal approach is made either on the right or on the left side. The side with the poorest vision is always chosen because in a certain number of cases it is necessary to sever one of the optic nerves. If vision is equal on both sides, a right-side approach is always preferred. The incision is above the hairline, and the scalp, bone and dural flap are turned downward. The frontal lobe is gently retracted with a spatula, exposing the chiasmal region. The steps to be taken for actual removal of the tumors then depend on several anatomical factors, as the length of the optic nerves, the location of the tumor in relation to the optic nerves, the size, shape and position of the tumor, and the strength of the tumor's capsule. To meet all of the above variations, three procedures are necessary: (1) removal of the tumor between the intact optic nerves; (2) removal of the tumor after severing one optic nerve; (3) removal of the tumor after resection of part of a frontal lobe. He states that these procedures, with few exceptions, will permit a complete, or almost complete, removal of the suprasellar portion of the tumor as well as that part which lies in the sella.

In the cases that I present tonight, the x-ray

treatments were used in both, with some resulting improvement, and, in one case, a redeposition of calcium into the sella, resulting in narrowing of it.

The first case, V. W., is a dentist, forty-five years of age.

His family history gave no important information. He had had sinus trouble for the past fifteen years.

About ten years ago the patient's dentist noticed that

This patient received two series of x-ray treatments using the 400 Kv. machine. The first was a series of 18 treatments, and the second, a series of 20 treatments, alternating right and left lateral fields over the pituitary. He was given then about 1900 roentgen units, measured in air, to each field; 1900 roentgens are equal to one erythema. The treatments were given daily with an interval of two months between the two series.

A radiograph of his skull, taken two years after the

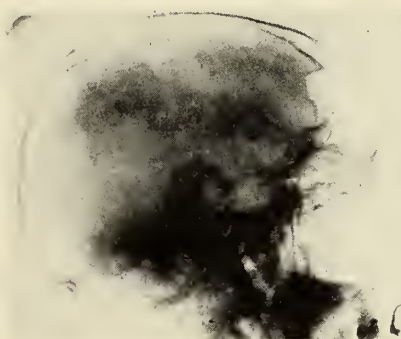


Fig. 1. Radiograph showing the deep frontal and maxillary sinuses, the irregular thickening of the skull bones in general, and an almost totally destroyed sella turcica.



Fig. 2. Radiograph showing the sella turcica rather plainly and without complete destruction of the walls of the sella. The frontal and the maxillary sinuses also are deep. Some irregularity in the thickness of the skull bones is also indicated here.

the mandible was increasing in size so that the lower dental ridge did not meet the upper. He began to have headaches and later noticed that his hands and feet were enlarging.

In the summer of 1937 a progressive numbness and clumsiness of the fingers made it difficult to use his dental instruments. It became impossible for him to handle small parts such as inlays and he discontinued practice.

By this time the prognathism and enlargement of the supraorbital ridges had reached large proportions. There was no associated visual disturbance. The lower jaw advanced $\frac{3}{8}$ of an inch in one year. The voice changed in quality and speech became slow with difficult articulation. Moderate polyuria became evident but no polydipsia.

Physical examination: There was a great prominence of the supraorbital ridges with a receding forehead. The mandible and maxilla were greatly enlarged. The lips, nose, and ears were enlarged. The hands were large, broad, and spade-like. The skin was thick and coarse. The chest was barrel-shaped and scoliosis was present.

In 1937, x-ray therapy was instituted.

Subsequent Course: In March, 1939, he underwent a herniorrhaphy. This was complicated by a postoperative pneumococcal pneumonia. Recovery was satisfactory.

In January, 1940, he was in the hospital for four days with acute pharyngitis and acute bronchitis. Recovery was prolonged.

The patient has evidenced inadequate resistance to respiratory infection. This is secondary, I believe, to his acromegaly. It is often the case that the acromegalic succumbs to intercurrent infection.

completion of the second series of x-rays, shows a deposition of calcium in the sella, and the sella thereby somewhat narrowed. His symptoms were somewhat relieved by the treatments in three months following the second series. He has not lost any weight, is eating well, and feeling better at the present time. There has been no increase in his prognathism.

The second patient has been working all the time, except while receiving x-ray treatments. He states that he is feeling better, and that the symptoms have not increased since the treatment was started.

He also had a negative family history. He had had no previous serious illnesses and no operations.

In December, 1938, he noticed that his lower jaw seemed to be growing and that the dental ridges did not meet exactly. He complained of a general weakness and night sweats. He had a tinnitus, a slight deafness, and some vertigo. Because of his deafness, he consulted an eye, ear, nose and throat man who later referred him to a dentist.

On December 9, 1939, I saw him for the first time.

His blood pressure at that time was 120/70, the urine was negative, hemoglobin 82 per cent, red blood cells 4,200,000. His blood Wassermann test was negative. He also complained of a numbness of the fingers. Films were made of the skull with special reference to the sella turcica. There was enlargement of the sella, with evidence of erosion of the anterior half of the floor of the sella, findings indicating an enlarged pituitary gland. There was also a marked prominence of the frontal sinuses and supraorbital ridge with the entire skull also showing irregular thickening of the cranial table. The mandible was definitely enlarged and showed protrusion. The entire picture was character-

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istic of acromegaly with pituitary tumor. There was no evidence of increased intracranial pressure and there was no bitemporal hemianopsia.

The x-ray film of the third case illustrates again what destruction a pituitary tumor can cause to the sella turcica. This patient at the age of eleven was rather heavy-set with square shoulders. On x-ray at that time the findings, as illustrated on the slide, were present. He received two series of x-ray therapy and at the age of fourteen he had become slender, as compared with his former build, and had reached the height of six feet. This, apparently, was an eosinophilic adenoma which was on the way to producing gigantism.

Another case, of which I have no x-ray pictures, was that of a woman, forty-five years of age, who had al-

ways been rather heavy. She and her family noticed that there was suddenly a reduction in her weight, and that her voice became deep and masculine. Hirsutism developed over the face and body, and the thyroid became enlarged. She developed hypertension, glycosuria, polydipsia, and asthenia. Her basal rate was plus 45. Headache became a prominent symptom. In other words, she presented Cushing's syndrome, plus a hyperthyroidism. A diagnosis of basophilic adenoma of the pituitary gland was made, but the patient did not return for an x-ray of the skull. Arrhenoblastoma of the ovary was ruled out by pelvic examination, but a cortical tumor of the adrenal could not be ruled out. This case was possibly a case of adrenal tumor, but the headache and visual disturbance called attention definitely to the probability of a pituitary tumor.

CLINICAL-PATHOLOGICAL CONFERENCE

◆ MINNEAPOLIS GENERAL HOSPITAL ◆

Frank C. Andrus, Pathologist

CONSTRUCTIVE PERICARDITIS

Presentation of a Case

The case is that of a sixty-six-year-old white male who was admitted to the hospital on March 3, 1941, and who expired on December 2, 1941. He was first seen in June, 1939, when he had an irreducible indirect inguinal hernia on the right side. A herniotomy was performed. In addition, right orchidectomy was done since the testis was atrophic. His course was uneventful and he was discharged on the nineteenth postoperative day.

The patient's final admission to the hospital was on March 3, 1941. His presenting complaint was upper abdominal pain of three weeks' duration. The cardiac dulness was enlarged and the patient was thought to be in right and left heart failure. Rales were heard at the bases of the lungs. The liver was palpable. The venous pressure was 18 cm. of citrate. On the night of admission, the patient had auricular fibrillation. This was confirmed by an electrocardiographic tracing. The following morning, without specific therapy, normal sinus rhythm was restored and remained so until the time of death. Subsequently, he was digitalized and he responded well for about three weeks. However, at this time, a pericardial friction rub appeared. The venous pressure had dropped to normal and the dyspnea had disappeared. His blood pressure dropped from 110/80 to 96/60. It was felt that a pericardial effusion was present because of the configuration of the heart on percussion and the distant heart tones. This could not be demonstrated, however, either fluoroscopically or roentgenographically. An electrocardiographic tracing showed diminished

amplitude in all QRS complexes, which was thought to be consistent with pericardial effusion. The patient also developed the physical findings of right pleural effusion. A thoracentesis was done and 1800 c.c. of fluid were removed from the right chest. The fluid was a transudate in character and contained almost 100 per cent mononuclear cells. A few days later more fluid was removed and it then contained 78 per cent eosinophiles. The peripheral blood which had shown no eosinophilia began to have as high as 15 per cent eosinophiles. Prior to this period he had been running an elevated temperature but at no time was there a leukocytosis over 7,000. The sedimentation rate was never higher than 23 mm. per hour. The pleural fluid removed a week later revealed no eosinophils.

Several guinea pigs were inoculated with the pleural fluid but they were negative for tuberculosis. Several paraffin blocks of the sediment did not contain tumor cells. About one month after admission his temperature leveled off to normal; however, fluid continued to form in the right pleural cavity. It was necessary to remove between 1,500 and 2,000 c.c. of fluid at least twice a week. The venous pressure was consistently elevated and remained at about 15 or 20 cm. Mercurial diuretics produced profound diuresis but were ineffective in keeping down the pleural effusion. X-ray studies of the lungs were not satisfactory in so far as demonstrating any parenchymal pathology due to the pleural effusion and pleural thickening. A muscle biopsy revealed no evidence of trichinosis or periarteri-

tis nodosa. Bronchoscopic examination was negative. The urine showed 10 to 20 pus cells but was otherwise negative. Investigation of the genito-urinary tract showed normal intravenous and retrograde pyelograms. Cystoscopic examination revealed mild cystitis. At one time the patient had a mild, generalized lymphadenopathy. This subsided within a few days. The liver had been palpable two to three fingers below the costal margin throughout the hospital stay. A galactose liver function test was normal. Later x-rays of the chest were taken and revealed that the patient was probably developing a constrictive pericarditis. The patient began to run a septic temperature again in the fall of 1941 and began to get weaker and became emaciated. He developed ascites. His course was gradually downhill and he expired on December 2, 1941.

The patient was worked up extensively from a laboratory standpoint. Numerous guinea pig inoculations with sputum and pleural fluid were all negative. Numerous smears of the sputum were all negative. The blood urea nitrogen was normal. Studies of the blood were normal except for the time when the patient developed eosinophilia.

Clinical Diagnosis: Constrictive pericarditis.

Autopsy Findings: The body was that of a fairly well developed but emaciated white male weighing about 110 pounds. There was no edema or cyanosis. The lips and fingertips were cyanotic.

Upon opening the abdomen, the peritoneal surfaces were found to be covered with a brownish purulent exudate having a strong fecal odor. The peritoneal cavity contained 2000 c.c. of exudate. Many small white nodules measuring 5 mm. to 1 cm. in diameter were seen over the peritoneum, especially marked over the mesentery. The small and large bowel were matted together and were separated with difficulty. The right pleural cavity contained an estimated 1000 c.c. of reddish fluid and there were many fibrous adhesions over the lateral surface and the base. The pleura was markedly thickened and was adherent to the diaphragm. The left pleural cavity contained 100 c.c. of straw-colored fluid. Several enlarged lymph nodes varying in size from 2 to 3 cm. in diameter were found in the anterior-superior mediastinum which had caseous centers. The pericardial sac was obliterated. The pericardium was markedly thickened, its wall measuring at least 2 mm. in diameter. It surrounded the heart and constricted it.

The heart weighed 290 grams, the ascending aorta being included. It appeared rather small. The valves were normal. The coronary arteries were patent throughout.

The pericardium and pleura of the right lung were markedly adherent, there being one entire adherent mass in the lower right mediastinum. The lungs showed evidences of posterior hypostasis and consolidation; however, no pus could be seen in the bronchi. A number of small tubercles measuring 1 to 2 mm. in diameter were scattered throughout the right lung and a few were found in the left lung. A few white nodular areas were present in the right upper lobe which were undergoing caseous necrosis and had the appear-

ance of confluent miliary tubercles. A large thrombus was present in the artery to the left lung.

The spleen appeared normal grossly. The liver showed slight evidence of chronic passive congestion. The gall bladder appeared normal.

The intestines were matted together by adhesions. An ulcer could be seen in the jejunum which had perforated, the perforation measuring about $\frac{1}{2}$ cm. in diameter. There were several ulcers in the ileum measuring about 1.5 to 2 cm. which had raised borders and necrotic centers.

The pancreas and adrenal glands were normal grossly. The kidneys appeared normal. The bladder showed slight evidence of cystitis. The right testis was absent. The remainder of the organs were normal.

Smears were made from the mediastinal nodes and these were found to be teeming with acid-fast bacilli.

Anatomic Diagnoses: Constrictive pericarditis, generalized peritonitis, and miliary tuberculosis.

Discussion

DR. FRANK ANDRUS: Microscopic sections of the lymph nodes, intestine, lungs, spleen, and liver revealed the characteristic structure of tuberculosis. Judging from the size of the nodules, we are led to believe that those in the intestine were considerably older than the ones found elsewhere. We, therefore, believe that the disease started out as a tuberculous enteritis and peritonitis with a rupture of a tuberculous ulcer of the intestine giving rise to a generalized putrid peritonitis. Towards the latter part of the patient's illness, he was also developing a generalized miliary tuberculosis. At the time of death, the pericardium had completely healed so that we found only a dense covering of fibrous connective tissue containing only a few lymphocytes. There were no tubercles. We assume that the pericarditis was tuberculous in its origin but we are unable to prove it. We do not feel confident that we could exclude tuberculosis as a causative agent of the pleural effusion even in the absence of tubercle bacilli on the centrifuged sediment or from absence of lesions in guinea pigs inoculated with the fluid. We are unfamiliar with the cause of the eosinophilia except that it has been stated that this sometimes occurs when a pleural cavity is repeatedly tapped. Heart failure may have played a part in the production of this pleural effusion. The sections from the myocardium showed a mild myocarditis, not tuberculous. This may be due to the terminal sepsis with generalized peritonitis. We think that the thrombus in the pulmonary artery had its origin in an embolism. It was firmly attached at the time of death. In the absence of pulmonary congestion and hydrothorax on the left side, there was no infarction, as the lung was fed by the bronchial arteries.

DR. B. J. CLAWSON: I would like to comment upon the question of constricting pericarditis. The idea that the heart is firmly bound to adjacent structures by the fibrous pericardium does not put the condition in the category of constricted pericarditis. We have seen cases in which the pericardium was even calcified and the patient had never experienced any heart failure. I believe that we should regard constrictive pericarditis as a clinical but not a pathologic entity since I think that it is the constriction of the vena cava and the reduction of flow of blood to the heart that reduces the cardiac output. In other words, I think that the pump is good but it simply cannot get enough blood. Simple obliteration of the pericardial sac will not produce this.

PEDIATRIC-PATHOLOGIC CONFERENCE

DULUTH PEDIATRIC SOCIETY

O. W. Rowe, President

Arthur H. Wells, Pathologist

OSTEOMYELITIS OF FRONTAL BONE WITH RECOVERY

O. W. ROWE, M.D.

Duluth, Minnesota

D. C., a twelve-year-old boy, contracted a mild cold on September 1, 1940. His mother noticed that he blew his nose very hard and continued to do so. On October 7 he complained of headache over the right frontal area, and also some pain over the maxillary sinus area. He felt better on the next two days. On October 10 the pain over the frontal region and the sinus was extreme. He was taken to a physician in Rice Lake who advised tonsillectomy and adenoidectomy. On October 11 he complained of much more pain. He refused to blow his nose because of the pain, although he stated that it was stuffed up and breathing was difficult. Later in the day he had four convulsions, and was unconscious for most of the day. His temperature was 103.4°. On October 12 he felt somewhat better, was a little clearer mentally, and his temperature was down to 101°. On October 13 there was some congestion of the lungs noted by the local physician. He complained of pain in the chest and occasionally a mild cough, and perspired at times very freely. His temperature was 102.3°. The pain over the frontal and maxillary sinuses continued. He was then able to blow his nose but did not do so successfully. He entered the hospital late that day; temperature 104°, respiration 35, pulse ranging from 110 to 130.

He was a large, very well nourished male of twelve years. He was unresponsive and irrational at times. There was a swelling over the right frontal area which extended down to the right side of the face including the right eye, which was closed by the edema. The swelling extended about half way across the left frontal area and involved the left eye to a less extent. Crepitation was present. The left eyelid was swollen and painful to touch, and there was slight conjunctivitis. The right eye was closed and extremely painful. The eyeball itself seemed quite prominent and the lids could be separated. The pupils were equal in size. Rotation was diminished in the right eye, but there was no proptosis or external ophthalmoplegia. The fundi were normal. Examination of the ears was negative. The tonsils were enlarged and cryptic but not actively inflamed. There was postnasal discharge. The nasal septum was straight. There was drainage of pus-like material from the right nostril and the nasal mucous membrane was inflamed. He objected to movement of the neck but movements were not limited. There was good expansion of the chest. The heart was not enlarged and no murmurs were present. There was slight suppression of breath sounds on the left chest posteriorly but no rales or dullness was found. On the left side of the abdomen was a burn from a hot water bottle produced while patient was having convulsions. There was no paralysis or abnormal reflexes.

Lumbar puncture: Colorless, clear fluid, P.M.N.'s. 19, lymphocytes 48, R.B.C.'s. none; protein 20 m.g. per cent; chlorides 669 mg. per cent; sugar 85 per cent; pressure 18 mg. Hg. Blood: white blood cells 24,300; hemoglobin 81 per cent; red blood cells 4,030,000. Differential: nonsegmented 44, segmented 39, lymphocytes 11, monocytes 6. Urine: normal.

The diagnostic impressions in their order of importance were: sinusitis—probably ethmoiditis and extension to right frontal; encephalitis; poliomyelitis; meningitis; and possibility of cavernous sinus thrombosis. Treatment consisted of sulfapyridine 7 grains every four hours, hot packs, fluids, neosynephrine and argyrol, continuous steam. Later x-ray therapy to sinuses, blood transfusion, and saline and glucose hypodermoclysis were administered.

The following morning x-ray examination showed bronchitis with a small amount of parenchymal infiltration extending out from the left hilus. Sinus x-ray showed right maxillary and ethmoidal involvement with general slight pansinusitis. There was no evidence of bony destruction. There was a small collection of gas or air above the frontal sinus. On October 16 a blood culture, nose culture and throat culture all showed *Staphylococcus aureus*. The swelling over the frontal sinus began to feel much more doughy and a needle was inserted. About 15 c.c. of pus were obtained. Culture revealed *Staphylococcus aureus*. A transverse incision was then made and the remaining pus drained. The periosteum was elevated. On incision considerable pus was obtained from this. The lesion was packed with iodoform gauze. The patient became much clearer mentally. On October 17, the eyegrounds were still normal, he was mentally clouded but could be aroused. The temperature was somewhat lower. Sulfapyridine had been stopped and sulfathiazole, 7 grains every four hours, was given. Blood concentration was 6.4 mg. per cent. On October 18 another blood transfusion was given following which the white blood count dropped to 9,400. X-ray of the chest on October 15 showed no appreciable change. X-ray of the sinuses on October 28 showed pansinusitis, more marked in the right maxillary sinus. There was suggestive evidence of bony involvement in the left frontal sinus area.

The patient gradually improved, the swelling and tenderness decreased. He became clear mentally. The drainage from the incision and also from the nose continued but decreased in amount. His appetite improved. There was some diplopia which we believed would clear up. A small sequestrum was removed from this frontal bone on February 21, 1941, and the wound was packed with vaseline gauze. Recovery was eventually complete.

HISTORY OF MEDICINE IN MINNESOTA

HISTORY OF THE MINNESOTA STATE MEDICAL SOCIETY

By ARTHUR S. HAMILTON, M.D.

Minneapolis, Minnesota

THE MINNESOTIAN of Saint Paul, July 16, 1853, contains the following note:

"We are requested to state that the medical profession of the territory will hold a convention at St. Paul, the 23rd instant."

So far as I am able to find any record, this represents the first attempt to hold a medical meeting in the district then known as Minnesota Territory. As there is no reference to this meeting in any of the subsequent transactions of the Minnesota State Medical Society, I must assume that it has escaped the attention of physicians and I shall, therefore, give the report literally as it appears in the public press.†

PROCEEDINGS OF THE MINNESOTA MEDICAL CONVENTION

Held in St. Paul, July 23, 1853

Pursuant to a previous notice through the newspapers and otherwise, a Convention of Physicians in Minnesota, met at the Court House in St. Paul, on July 23, 1853.

On motion of Dr. A. E. Ames, of Minneapolis, for a temporary organization, Dr. Thos. R. Potts, of St. Paul, was called to the chair, and Dr. Chas. L. Anderson, of St. Anthony Falls, was appointed Secretary.

On motion of Dr. Ames, it was

RESOLVED, That we, Physicians of Minnesota, deem it expedient to proceed to the organization of a Medical Society.

On motion it was also

RESOLVED, That the Convention resolve itself into a Committee of the Whole to produce a plan for the organization of a Medical Society in Minnesota.

PROCEEDINGS IN COMMITTEE OF THE WHOLE

Dr. John H. Murphy, of St. Anthony Falls, in the Chair.

Dr. Ames produced a form for the Constitution and By-Laws, made up largely from those in force in Pennsylvania and Illinois, which, after due consideration and amendment, was reported along with the National Medical Code of Ethics, to the Convention, and the Committee adjourned to meet in Convention at 2:00 o'clock p.m.

Afternoon Session

Convention met, and, on motion, the report of the Committee was unanimously adopted.

On motion of Dr. T. T. Mann of St. Paul, it was

RESOLVED, That medical gentlemen present, or recent residents, be invited to take seats and participate in the deliberations of this Convention.

Dr. Ames then moved that the Convention now resolve itself into the Minnesota Medical Society, which was passed.

On motion, a committee of three was appointed to nominate suitable officers and committees for the Society, to serve according to the Constitution and By-Laws for the ensuing year.

The President appointed Drs. Ames, Mann and Murphy to serve on that Committee.

After an absence of a few minutes, the report of the Committee was received, and the following gentlemen unanimously elected as officers for the ensuing year:

†*Northwestern Medical and Surgical Journal*, Chicago, 2:363, 1853. and *The St. Anthony Express*, III; No. 10, (July 30) 1853.

HISTORY OF MEDICINE IN MINNESOTA

President—Dr. Thomas R. Potts, of St. Paul.

Vice Presidents—Dr. John H. Murphy, of St. Anthony Falls, and Dr. A. E. Ames, of Minneapolis.

Corresponding Secretary—Dr. T. T. Mann, of St. Paul.

Recording Secretary—Dr. Chas. L. Anderson, of St. Anthony Falls.

Treasurer—Dr. J. D. Goodrich, of St. Paul.

Censors—Drs. Wm. W. Finch, J. H. Day and John J. Dewey, of St. Paul.

The following is the report on Committees, which was unanimously adopted:

Committee of Arrangements—Drs. Murphy, Anderson and Johnson, of St. Anthony Falls.

Committee on Practice of Medicine—Drs. Brisbane, of St. Paul; Carli, of Stillwater; and Anderson, of St. Anthony Falls.

Committee on Surgery—Drs. McDougal, of Fort Snelling; J. H. Day, of St. Paul; and Ames, of Minneapolis.

Committee on Obstetrics—Drs. Potts, of St. Paul; Murphy, of St. Anthony Falls; and Mann, of St. Paul.

Committee on Drugs and Medicines—Drs. Goodrich, Willey and Dewey, of St. Paul.

Committee on Publication (Ex-officio)—Drs. Mann, of St. Paul; Anderson, of St. Anthony Falls; and Goodrich, of St. Paul.

On motion, The Society then proceeded to ballot for a Delegate to the next meeting of the National Medical Association; which resulted in the election of Dr. John H. Murphy, of St. Anthony Falls.

Dr. Ames offered the following resolution:

RESOLVED, That this Society highly approve the efforts made by the National Medical Association to suppress the sale of intoxicating drugs and medicines. Unanimously adopted.

Dr. Anderson offered the following resolution, which was also unanimously adopted.

RESOLVED, That the next annual meeting of this Society be held at St. Anthony Falls.

On motion of Dr. Ames it was

RESOLVED, That the Corresponding Secretary be instructed to inform the National Medical Association of our willingness to coöperate with them.

The following Physicians were present and assisted in the organization of the Society:

Permanent Members.—Drs. Thos. R. Potts, James D. Goodrich, W. W. Finch, John J. Dewey, and T. T. Mann, of St. Paul; John H. Murphy, and Chas. L. Anderson, of St. Anthony Falls; A. E. Johnson, St. Anthony City; Alfred E. Ames, Hennepin County.

Present by Request.—Drs. A. W. Daniels, O. P. Marsh.

The following Physicians were not present, but had expressed a desire to coöperate with the Society and for that reason were unanimously elected members:

Drs. J. H. Day, A. G. Brisbane, and Samuel Willey, of St. Paul; McDougal, Fort Snelling; C. Carli, Stillwater.

After many expressions of hope for the success and usefulness of the Society, and the personnel of its members, it adjourned to meet again on the first Wednesday in June, 1854, at St. Anthony Falls.

C. L. ANDERSON and T. T. MANN, *Secretaries*

T. R. POTTS, *President*

I have been unable to find any record of the Constitution and By-Laws adopted on this occasion beyond the following paragraph which was introduced at the request of Dr. T. T. Mann, "from the record of another society," and which constituted the second article of the constitution.

The Objects of the Society

The objects of this Society shall be the advancement of medical knowledge, the elevation of professional character, the protection of the interests of its members, the extension of the bounds of medical science, and the protection of all measures adopted to the relief of suffering, and to improve the health and protect the lives of the community.*

The Constitution was printed and is listed in the catalogue of the Surgeon General's Library but cannot now be found.

There is no record that I can find of any meeting having been held in June,

*A committee, consisting of Drs. Hawley, Wharton and Kimball, was appointed at the February, 1869, meeting to revise the Constitution and By-Laws. Their report was adopted at the meeting of February 1, 1870, with no statement as to the preceding Constitution and By-Laws. There is, therefore, no means of determining how far the regulations adopted in 1870 are in keeping with those of 1853, but there is certainly no paragraph as accepted in the Constitution of 1870 which is in keeping with the paragraph mentioned above.

1854, as had been agreed upon, but *The Minnesota Republican* of January 17, 1856, under the heading "Minnesota Medical Society" says:

The following are the officers of this society for the coming year: President, Dr. Potts, St. Paul; Vice President, Dr. Murphy, St. Anthony; Corresponding Secretary, Dr. Goodrich, St. Paul; Recording Secretary, Dr. Wren, St. Paul; Treasurer, Dr. Day, St. Paul. Censors: Drs. Ames, Minneapolis; Smith, St. Paul; and Johnson, St. Anthony. Committee of Publication: Drs. Ewing and Marsh, St. Paul, and C. L. Anderson, Minneapolis.

Presumably a meeting of the society had been held just preceding this date but the newspaper for that particular week, most unhappily, is lacking in the State Historical Society files and no other note can be found up to Monday, February 1, 1869, when a meeting of the physicians of Minnesota was held at the International Hotel, in Saint Paul, "to consider the expediency of reviving the old society, or of organizing a new one." In the record of subsequent proceedings of this 1869 meeting, a short historical note gives the following: "In December, 1855, a Minnesota State Medical Society was organized, but no meetings had been held for several years previous to 1869."

In the further proceedings of the 1869 meeting, as reported in the lay press,[†] it is stated in respect to the meeting of 1855:

Two subsequent meetings were held, the last being at St. Anthony in 1857. After that period the society was allowed to languish. The rebellion broke out and a large number of members entered the service, and hence no meetings have been held, until the call appeared under which the society assembled today at 11:00 a.m., at the International Hotel.

Though at the meeting of February 1, 1869, it was accepted that a Minnesota* Medical Society had been organized in 1855, subsequent annual meetings, for some reason, have been dated as 1869. In reality, the date of actual founding was July 23, 1853, as is clearly shown by the *St. Anthony Express* of July 30, 1853. It is, moreover, almost certain that there was a meeting in 1856, but how many intervened between that of 1853 and the one of 1869 will probably never be determined.

At the 1869 meeting, the officers of the preceding session are given as:

President, Dr. T. R. Potts; Vice President, Dr. J. H. Murphy; Recording Secretary, Dr. J. V. Wren; Corresponding Secretary, Dr. J. D. Goodrich; Treasurer, Dr. David Day. Censors: Drs. W. H. Morton, F. R. Smith, J. H. Stewart, A. E. Johnson, and A. E. Ames.

As this list does not agree with the officers' names given in 1856, at must be assumed that a meeting was held between 1856 and 1869, but it so happens that the St. Paul city directory of 1856-57 gives the officers of the Medical Society of Minnesota exactly as appears above so that they must have been appointed at least as early as 1857. Furthermore, as Dr. Potts was obviously recognized in 1869 as the legitimate president and Dr. Murphy as the vice president, it must be assumed that the officers just mentioned are to be accepted as holding over from 1856 or about that date, and that no meeting between 1857 and 1869 had been held.

Since the regular transactions contain but a short account of the meeting of February 1, 1869, I will again make use of the lay report as it appears in the *St. Paul Pioneer Press*, with but little alteration:

[†]*St. Paul Pioneer Press*, February 3, 1869.

*It should be remembered that Minnesota as a Territory was not founded until March 3, 1849, and was admitted as a state May 11, 1858. Bearing these dates in mind will obviate the confusion which might otherwise arise owing to the rather loose use of the term "Minnesota State" in early days.

STATE MEDICAL SOCIETY

The Society assembled at 11:00 a.m., at the International Hotel.

Dr. Potts, the President of the Society, being absent, Dr. J. H. Murphy, the Vice President, called the assemblage to order, when Dr. D. W. Hand was elected Secretary.

A committee of three, consisting of Drs. J. H. Stewart, St. Paul, N. B. Hill, Minneapolis, and W. W. Mayo, of Rochester, was appointed on credentials.

The President, Dr. Potts, having entered the room, took the chair.

Dr. A. E. Ames, of Minneapolis, on behalf of the Censors, proposed the names of the following physicians as duly qualified for membership, and moved that they be elected, which motion prevailed:

E. J. Davis, J. C. Jones, Mankato; W. W. Mayo, E. W. Cross, Rochester; Hon. S. B. Sheardown, Winona; J. A. Allen, Austin; A. W. Daniels, St. Peter; O. Ayer, Le Sueur; N. B. Hill, C. G. Goodrich, Chas. A. McCollom, W. F. Hutchinson, J. J. [H. H.?] Kimball, J. H. Churchill, C. J. Dubois, H. A. Dubois, O. J. Evans, A. H. Lindley, Minneapolis; Samuel Willey, Alfrey Wharton, D. W. Hand, S. D. Flagg, Brewer Mattocks, Chas. E. Smith, E. H. Smith, A. G. Brisbane, John Steele, M. Hagen, J. B. Phillips, Adelard Guernon, St. Paul; W. A. Griffin, C. E. Rogers, Carver; W. W. Sweney, Charles Hewitt, Red Wing; A. C. Wedge, Albert Lea; J. C. Rhodes, H. F. Noyes, Stillwater; Solomon Blood, Owatonna.

The committee on credentials reported the above list, together with the officers of the Society, as entitled to seats in the convention, which report was adopted.

Some time was spent in desultory discussion concerning the revival of the old Society or the organization of a new one, when, by unanimous consent, it was resolved to reorganize.

The Society being thus resolved into a general convention, the same temporary officers were elected chairman and secretary.

Dr. Ames moved to proceed to the organization of a new society.

Dr. Hewitt, of Red Wing, was opposed to such hasty action. He favored the appointment of a committee to propose a constitution and bylaws, which committee could report at some subsequent meeting in the fall, thus giving the different counties and districts throughout the State time to organize auxiliary societies and send regular delegates to the adjourned State Convention.

Several other gentlemen took part in the discussion, which was cut short by Dr. Stewart moving the appointment of a committee of five to report a constitution and bylaws for a permanent organization, which motion prevailed.

The chair appointed Drs. J. H. Stewart, of St. Paul; A. E. Ames, Minneapolis; W. W. Mayo, Rochester; A. C. Wedge, Albert Lea; and Charles Hewitt of Red Wing, as such committee.

The committee retired, and, on returning, the majority report was in favor of the adoption of the old constitution and bylaws for the government of the new Society, changing the time of the annual meeting to the first Tuesday in February.

Dr. Hewitt made a minority report, again favoring a postponement until fall. The majority report was adopted.

On motion of Dr. Murphy, the chair appointed a committee of five, consisting of Drs. Wharton, Stewart, Ayer, Kimball, and Dubois, to nominate officers for the ensuing year.

After retiring to deliberate, Dr. Wharton, from said committee, submitted the following report:

President—Samuel Willey, St. Paul.

Vice President—A. E. Ames, Minneapolis.

Corresponding Secretary—Alfred Wharton, St. Paul.

Recording Secretary—E. J. Davis, Mankato.

Treasurer—Hon. S. B. Sheardown, Winona.

Censors—J. H. Murphy, St. Paul; N. B. Hill, Minneapolis; W. W. Mayo, Rochester; A. C. Wedge, Albert Lea; J. C. Rhodes, Stillwater.

Standing Committee—A. G. Brisbane, St. Paul; E. C. Roger, Carver; J. E. Finch, Hastings.

The Convention then took a recess until 2:30 p.m.

Afternoon Session

On re-assembling Dr. Samuel Willey, the President-elect, assumed the chair, and briefly thanked the Society for the honor conferred upon him.

Dr. Ames moved the appointment of a committee of three, as the organ of the Society, in reference to Legislative enactments, affecting the organization throughout the State.

This motion provoked considerable discussion, participated in by Drs. Hewitt, Potts, Goodrich, Blood, Sheardown, Noyes, Mayo, and others, and finally culminated in the adoption of the following resolution, offered by Dr. Day of St. Paul:

HISTORY OF MEDICINE IN MINNESOTA

RESOLVED, By the State Medical Society assembled, that in case the Legislature now assembled desire to protect the citizens of this State against quackery, it is the duty of this Society to coöperate with the Legislature, and lend its assistance in framing all needful laws upon the subject; and that Drs. Willey, Sheardown and Stewart be appointed a committee as the organ of the Society for this purpose.

On motion of Dr. Ames, the President appointed Drs. Murphy, Hewitt, and Sheardown delegates to the American Medical Association which meets in New Orleans the first of May next.

Dr. Hewitt offered the following resolution which was adopted:

RESOLVED, That we urge upon members of the profession throughout the State to perfect local organizations as provided by the regulations of this Society, not only as materially assisting to sustain it in a state of greater efficiency, but to perfect local as well as the State organization, and to increase that feeling of lively interest in the profession so essential to its prosperity and success.

The convention then took a recess until 7:30 P. M.

Evening Session

Convention met at 7:30 P. M., Dr. Murphy in the chair.

Dr. Blood, of Owatonna, moved that a committee of three be appointed to revise the constitution and bylaws and report at the next annual meeting. Carried.

The chair appointed Drs. Hawley, Kimball and Wharton such committee.

On motion of Dr. Mayo, the chair appointed Drs. Mayo, Blood and Phillips a committee on finance.

It was decided that an assessment of \$2.00 upon each member would meet the necessary expense.

Dr. Hewitt moved that the Society hold semiannual meetings, in different localities throughout the State, and that the first meeting be held on the 17th of June next, which motion prevailed, and Owatonna was selected as the place of meeting.

The Vice President of the Society was appointed to deliver an address upon that occasion, and Dr. Kimball to read an essay. Dr. Hewitt, of Red Wing, was appointed to deliver the annual address before the Society.

Drs. Hewitt, Noyes and Sheardown, having been appointed a committee to draft a program for the meeting at Owatonna, reported the following order of exercises:

- (1) Essay by Dr. Kimball; Subject, Rheumatism.
 - (2) Dr. Wharton of St. Paul, and Dr. A. B. Stuart of Winona, to introduce the discussion of the Essay.
 - (3) Discussion on Quackery; Its Diagnosis and Treatment. Drs. Mattocks and Hewitt to open the discussion.
 - (4) Adjourn until 7:00 P. M., when the address of the Vice President will be delivered, with general discussion of the subjects suggested in the address.
 - (5) Report of Committees. Adjournment.
- The report was adopted.

Dr. Blood moved that each member of this Society be requested to report some case in his own practice at each meeting for discussion. Adopted.

Dr. Blood also offered the following resolution, which was adopted:

RESOLVED, That a committee of one from each county be appointed to report the names and number of practicing physicians in their respective counties; also, the number practicing in their counties who are not recognized as physicians by this Society, and their classification.

The chair appointed Drs. Brewer Mattocks, of Ramsey; W. W. Sweney, of Goodhue; H. F. Noyes, of Washington; W. A. Griffin, of Carver; A. C. Wedge, Freeborn; E. J. Davis, of Blue Earth; W. W. Mayo, of Olmsted; S. B. Sheardown, of Winona; and N. B. Hill, of Hennepin, as such committee.

On motion of Dr. Sheardown, a vote of thanks was unanimously tendered Col. E. C. Belote, of the International Hotel, for the use of the room and the attention and courtesies shown the Society at this meeting.

After some desultory conversation upon minor topics, the Convention adjourned to meet at Owatonna on the 17th of June next.

First Semiannual Meeting

The first semiannual meeting of the Society was held at Owatonna, June^o 16, 1869, at Dresser's Hall. The Society convened at 11:00 a.m., and, in the absence of both presiding officers, Dr. J. H. Murphy was chosen temporary chairman.

The minutes of the last meeting were read and approved.

The members present were: Drs. Mayo, Murphy, Mattocks, E. H. Smith, Lindley, Hutchinson, Blood, Sheardown, Noyes, Rhodes and Davis.

On motion, the following committee on credentials was appointed: Drs. Noyes, Lindley and Mattocks.

The Society then adjourned to meet at 2:00 p.m.

Afternoon Session

At 2:00 p.m., the committee on credentials reported the names of the following physicians, as qualified for membership, and on motion they were elected:

Drs. F. S. Bodle and S. L. Bennett, Owatonna; F. H. Milligan and W. L. Lincoln, Wabasha; W. H. H. Richardson and J. B. McGaughey, Winona; E. S. Gibbs, Geneva; C. Hill, Pine Island; L. Redmon, Preston; H. H. Guthrie, St. Charles; O. W. Sadler, Concord; C. P. Adams, Hastings; J. B. LeBlond, Brownsville; F. M. Rose, Faribault; J. L. Wakefield, Shakopee; E. C. Cross, Rochester; C. H. Boardman, St. Paul.

In the absence of Dr. Kimball, his essay on "Rheumatism" was read by Dr. W. F. Hutchinson.†

Dr. Willey, having arrived, took the chair.

The committee appointed to ascertain the number of regular and irregular practitioners in the state, presented the following report:

	Regular	Irregular
Ramsey	24	21
Hennepin	18	21
Washington	4	5
Fillmore	11	8
Dakota	5	4
Houston	4	5
Wabasha	8	4
Steele	5	4
Olmsted	8	6
Goodhue	8	4
Winona	20	9
Dodge	4	2

Dr. Rhodes, of Stillwater, introduced a motion prohibiting the admission of any person to membership in the Society who could not produce satisfactory evidence of being a legal practitioner of medicine. After considerable discussion by the members the resolution was adopted, though it must have led to serious misgivings in the minds of more than one present.

The Society then adjourned to meet at 8.00 p.m.

Evening Session

The Society again convened; Dr. Murphy in the chair.

Dr. Murphy announced that the president, Dr. Willey, offered for competition by members of the Society, the two following prizes: \$50.00 for the best essay on the "Epidemic and Endemic Diseases of Minnesota"; and \$50.00 for the best essay on "Cerebro-Spinal Meningitis"; the relative merits of the essays to be determined by committees to be appointed by the President, and the names of the successful competitors not to be made known until after the awarding of the

†So far as the records show, this is the first scientific contribution to the Society.

prizes. The thanks of the Society were tendered to the President for his liberality.

Dr. Mattocks, of Saint Paul, then opened the discussion on "Quackery," and as might have been expected, with Mattocks' ready tongue, a lively debate ensued. Drs. Rhodes, Sheardown, Blood, Hutchinson, and others were participants. Finally, to reestablish peace, as we may assume, the subject for discussion was changed to the less personal one of typhoid fever. Here again disagreement probably developed and the debate was ended by the appointment of Drs. Milligan, Hill and Richardson as a committee to report upon the origin, nature and treatment of typhoid fever, at the next meeting.

After the adoption of votes of thanks to the presiding officers of the meeting, and to the citizens of Owatonna, and particularly to Dr. Blood, for his hospitality, the Society adjourned.

Annual Meeting

Beginning with the annual meeting at Saint Paul, February 1, 1870, the records of the meetings are very complete, and are so widely distributed that no attempt will be made to give even an abstract of all the transactions, and only those matters that at the time seemed important, or later became so by virtue of subsequent happenings, will be referred to.

Previous to this date, references in the public press to medical men and their interests were neither frequent nor full and often not friendly. The new country was full of newspapers, many of which were ephemeral and the editors often attacked each other with a vigor and viciousness that might well have reconciled the doctors to a place more or less out of the limelight.

Moreover, Minnesota was settled at a time when questions of very grave national interest were agitating the public. The difficulties between the North and the South and the matter of slavery, the Kansas Free Soil agitation, and the subsequent Civil War, the Indian and the Mormon troubles, absorbed the attention of editors and their readers alike to a large degree, and what time was left from these more or less national questions was largely devoted to a consideration of the growth and extension of population and of railroads, to the subduing of the wilderness that extended in every direction, and to the question of local religious and political activities, which latter were often discussed in a manner more animated than dignified.

(To be continued in the February issue.)

CHOLERA POSSIBLE IN JAPAN IF CROWDED CITIES ARE BOMBED

Effective bombing of Japan's crowded, inflammable cities might easily give rise to an epidemic of the deadly Asiatic cholera, U. S. Public Health Service epidemiologists believe.

Two cases of cholera in at least one Japanese province (Taiwan) have been reported to the Public Health Service this year, and it is believed many more occurred. Cholera prevails in the Far East but there is none in the United States.

Cholera is spread by eating raw foodstuffs and drinking water infected with the microscopic curved rods which are the cholera germs. Normal supervision of these sources would be disrupted by severe bombings of Japanese "paper" cities.

A far higher number of people would be made homeless in Japan by bombings than in this country where living quarters are less crowded and more durable.—*Science News Letter*, January 3, 1942.



H. Z. GIFFIN, M.D., President,
Minnesota State Medical Association

President's Letter

IN his December letter Dr. B. J. Branton "passes the torch" to his successor. You will, I am sure, desire me to record here the facts you know so well—that he has in an exceptional manner performed the work of the presidency, that he has traveled often and far to discuss pertinent questions with members of the association and by his personality to promote loyalty and professional integrity, and, most important of all, that he has done more than his share to accomplish coöperation and kindness within the profession and between the various professional groups of the state.

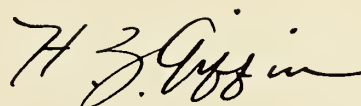
It is a great honor you have bestowed upon me and I appreciate it highly. It carries with it a great responsibility. As a member of the Council for more than eight years I have become somewhat familiar with the problems of the Association. Acting as President, however, is a duty like no other and I must learn from my predecessors. There is, to be sure, an element of sadness in the thought that I shall be gradually retired from active participation in the affairs of the Council and from association with men of such unselfish judgment and loyalty. My chief aim during the year shall be to carry the messages of the House of Delegates and the Council to the membership and those of the members to the officers.

This is our first year of war. It will be a difficult year for the State Association—a year for both vision and action. We must provide not only physicians for service with the armed forces but also adequate medical care at home with reduced personnel. Coöperation, coördination and expansion are the watch words: coöperation with existing agencies, coördination with governmental services, expansion of certain activities important to education, public health and civilian defense.

Each member of the Association is a unit of importance, but specific accomplishment can be attained best through the work of our committees and our administrative staff. So I say let us support our committees in their work. The members of these committees give time and effort gratis and they should not be allowed to become discouraged. In January, conditions permitting, I propose to call a meeting of the chairmen of scientific committees so that a sympathetic understanding of the province and program of the work of each committee may be had by all, with respect to war work and civilian defense and also with respect to long term activities.

Specific problems cannot be discussed in detail in this letter but two subjects should be mentioned concerning which every physician should be well informed at this time: Civilian Defense and the Service of Procurement and Assignment of Physicians. In this connection I suggest that we read regularly not only our news letter and the section on Medical Economics of MINNESOTA MEDICINE but also, and by all means, the section on Medical Preparedness in the *Journal of the American Medical Association*. Developments along these lines will be not only important but interesting.

In all our war work, however, we should not forget the basic reason for being a doctor—the care of the patient. For this we must be well informed and to be well informed we must take advantage of every means to further our own knowledge of medicine—extension services, continuation study, postgraduate assemblies and clinic weeks, as well as meetings of our medical societies. We should take advantage of our best investment—an ever growing knowledge of the science and art of medicine.



EDITORIAL

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BUSINESS MANAGER
J. R. BRUCE

Volume 25 JANUARY, 1942 Number 1

PHYSICAL DEFECTS OF SELECTEES

WITH the increased need in the national
emergency for more men, consideration of
the nature and extent of disqualifying physical
defects challenges the interest of every physician.
Col. Hullsiek² reported in May, 1941, that ap-
proximately 1,000 members of the medical and
dental professions examined over 35,000 regis-
trants in the State of Minnesota and found 64
per cent of these fit for general military service,
13 per cent fit for limited military service and
23 per cent unfit for any military service. Insuf-
ficient teeth accounted for 29 per cent of dis-
qualification compared to 3.1 per cent in 1917-18.

The author of the above report was unable to
state whether this variation represented a change
in dental condition or of more rigid application
of standards at the present time. It appears prob-
able that the divergence is due to more rigid ap-
plication of standards. Cardio-vascular, musculo-
skeletal, eye and nervous and mental disqualifica-
tions varied from 13.1 to 10.3 per cent. Tuber-
culosis as evidenced by total respiratory disease
was infrequent and there were only 76 (0.2 per
cent) new cases of syphilis encountered in 30,333
men. A report from the state headquarters of the
Selective Service System dated September 19,
1941, shows that of 152,289 registrants from Min-
nesota classified to date, 21,223 have been in-
ducted or are available for military service and
that 15,330 were physically, mentally or morally
disqualified. The group of miscellaneous, agri-
cultural, industrial and defense deferments were
25,739 with dependency leading all other causes
at 81,457.

It is self-evident that preventable infectious
diseases were of infrequent occurrence and that
insufficient teeth to meet the standards was the
chief disqualifying defect. The correction of den-
tal defects in men otherwise physically fit presents
a problem that might well be met by the indi-
vidual and his dentist. With indignity, special
measures appear necessary and in other instances
continued adjustment in fees according to the in-
dividual's ability to pay. The Selective Service
proposed¹ that minor defects, chiefly dental, be
corrected by sending the men to local physicians
and dentists through the authority of the local
boards with fees to be paid by the United States.
It is understood that this is an emergency meas-
ure. With the demands that will now be made
upon the medical profession for the proper ex-
amination of registrants and medical care in dif-
ferent branches of the armed forces and in the
civilian population it is to be doubted that diver-
sion of even a small number of physicians for
correction of minor surgical defects will be found
feasible. Under usual circumstances the correc-
tion of defects would be limited to those who
would choose to have a recommended procedure
under a surgeon of their choice and this method

should continue to be operative for those few who would so elect. General Hershey² stated that the army would be asked to induct on a waiver those individuals who refused to have a corrective procedure which would lead to qualification.

Although at first sight the number of physically defective individuals seems large it is gratifying to note that the incidence of preventible infectious diseases is low. The high incidence of individuals who have not had restorative dentistry speaks for lack of health education and lack of appreciation of present facilities for care rather than any limitation of those facilities. When the present emergency shall have ended in victory through the coöperation of all, a campaign of health education, leading to a better appreciation in the public of the facilities for medical practice, of the value of vaccination and other preventive measures, of tuberculosis and venereal disease control, of oral hygiene and of nutrition and of periodic physical examinations, may well be led again by the medical profession with its allies in Public Health Administration and Education. Incidentally the many hours of service rendered by the volunteer physicians for the local boards is to be commended as an expression of patriotism consistent with best professional ideals. In this way also American medical practice has made good.

C. A. McKINLAY, M.D.

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2. Hulsiek, Richard B.: Physical defects of selectees. *Minnesota Medicine*, 24:1052-1054, (December) 1941.

WORLD WAR II

WITH the beginning of the year we face a threat to our national security as great as we have ever had. For the first time in our history our country has been attacked and we have been forced to fight, not one country, but a combination of three totalitarian powers of known and unknown military and naval power. The treacherous initial attack by Japan before any declaration of war, caused great damage, but proves the tactics of the Japanese are true to the German form.

Whereas there has been until now some question in certain quarters as to the existence of an emergency, as to the need for emergency measures in our defense program, and as to the dan-

ger of invasion from across the sea, these questions were dramatically answered on December 7. Possibly the stunning effect of the surprise attack was a blessing in disguise. Certainly the result has been a sudden unification of the elements in our population.

We predicted in an editorial just a year ago that we would have to decide in the near future whether we would prefer to meet this foreign combination of nations at some future date, possibly alone, or at an earlier date in alliance with a powerful empire. It has been decided for us. We are fortunate in having an additional powerful ally in Russia, even though we may heartily disapprove of the Russian form of government.

The time for discussion of national policy is gone. It is the duty of every citizen to do his bit in the defense of his country. The demand for doctors will be even greater than it has been. An economy of doctors' hours will have to be practiced. The plans contemplated by the Selective Service in the selection of draftees will be saving in this respect. The delegation of routine administrative matters in the army to other than those medically trained deserves consideration.

The various armed services will need many more doctors. The production of new doctors cannot be speeded up very much. What can be done by the elimination of medical school vacations should be done. The enrolled medical students are not being drafted until the completion of their internship. Internship in some military general hospitals is as valuable as in certain civilian hospitals and substitution might be possible.

War today is proving to be more and more a war of aviation. Navies without the protection afforded by airplane fighters are helpless. Control of the air is fully as important for armies. This will result in a great impetus to aviation medicine.

The medical profession of America has never been lacking in patriotism. We shall not fail in World War II.

A report from Moscow says that, preparing for *winter fighting*, soldiers in the Moscow area have practiced marching on skis over rough terrain, tossing grenades and shooting from various positions on skis; and first aid detachments on skis have been organized. —*Science News Letter*, December 20, 1941

**ENROLLMENT FORM FOR PROCUREMENT AND
ASSIGNMENT SERVICE FOR PHYSICIANS**

Dr. Sam F. Seeley, Executive Officer
Procurement and Assignment Service
New Social Security Building
4th and C Streets S. W.
Washington, D. C.

Dear Doctor Seeley:

Please enroll my name as a physician ready to give service in the Army or Navy of the United States when needed in the current emergency. I will apply to the Corps Area commander in my area when notified by your office of the desirability of such application.

Signed.....

1. Give your name in full, including your full middle name:
.....
2. The date of your birth:
.....
3. The place of your birth:
.....
4. Are you married or single?
.....
5. Have you any children? If so, how many?
.....
6. Do you believe yourself to be physically fit and able to meet the physical standards for the Army and Navy Medical Corps?
.....
7. Have you filled out previously the questionnaire sent to all physicians by the American Medical Association?
.....
8. When and where were you graduated in medicine?
.....
9. In what state are you licensed to practice?
.....
10. Do you now hold any position which might be considered essential to the maintenance of the civilian medical needs of your community? If so, state these appointments:
.....
.....
11. Have you previously applied for entry into the Army or Navy Medical Service? If so, state when, where and with what result (if rejected, state why).
.....
.....

Signature.....

Date..... Address

ENROLL NOW!

UNCLE SAM needs more physicians for the military services. The amendment to the Selective Service Act makes all men under forty-five years of age, physicians included, subject to service.

In order that the service of a considerable proportion of the physicians in the army will not cause any greater inconvenience to civilian communities, public health agencies, and industrial plants than necessary, the Procurement and Assignment Service for Physicians and Veterinarians was established by the President on October 30.

At a joint meeting of this committee with the Committees on Medical Preparedness of the American Medical Association, the American Dental Association, and the American Veterinary Medical Association, plans were made for obtaining the names of physicians who wish to enroll promptly in the service.

In *The Journal of the American Medical Association* for December 27 appeared a blank, reproduced herewith, which should be filled out and mailed to Dr. Sam F. Seeley at Washington by those physicians under the draft age of forty-five who consider themselves physically fit and not essential for civilian needs in their communities. This should assure their assignment to the type of service for which they are best fitted. This will also avoid the possibility of unclassified service in the army. A physician called by the Selective Service who has not enrolled or who is not on a reserve list, obviously serves without a commission during the time that necessarily elapses before a commission is secured.

**CURE FOR ATHLETE'S FOOT
DISCOVERED BY SCIENTIST**

A cure for athlete's foot which stops itching immediately and leaves no stain on skin or clothing is announced by Dr. Edward Francis, medical director (retired) of the U. S. Public Health Service. (*Journal, American Medical Association*, Dec. 6.)

Dr. Francis' remedy consists of a mixture of three parts phenol and one part camphor which can be prepared by any pharmacist. He reports that the mixture is "nonirritating and may be painted between the toes several times a day. The sock may be replaced immediately without danger of corrosion."

Users are warned, however, that the preparation should not be applied to wet skin.—*Science News Letter*, December 13, 1941

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

Minnesota State Medical Association
George Earl, M.D., Chairman

PHYSICIANS ARE READY

The impact of war found the Minnesota State Medical Association with machinery already functioning to deal effectively with problems of increased personnel for the armed forces and of redistribution to fill in gaps left by men called to active duty.

The Council of the Association, meeting one week after the attack on Pearl Harbor, went on record offering its services in aid of the newly organized Procurement and Assignment Service for Physicians, Dentists and Veterinarians to the end that a sufficient number of qualified medical men may be secured for the armed forces without, at the same time, stripping the civilian population in Minnesota of needed medical service.

In Civilian Defense

Full coöperation with the Office of Civilian Defense in organization of Emergency Medical Field Units was pledged also and members were urged to volunteer for this service in their home communities, as soon as local plans are worked out.

The importance of civilian health in time of war was likewise recognized and all organized facilities of the Association will be utilized, especially, to extend public knowledge of nutrition and to push to the utmost campaigns of vaccination and immunization in the population.

For Better Nutrition

Plans for publication of simple diet sheets for children, for normal and overweight adults, and for pregnant mothers were outlined and approved. These sheets will be prepared by nutrition authorities. They will be distributed without charge through the doctors of the state.

Attractive posters exhibiting a family group with the query, "Is Your Family Protected

Against Smallpox?" have already been prepared and sent to every member and to public health nurses and school superintendents all over the state. With the poster went a printer's proof of a leaflet "stuffer" with the same picture and a somewhat extended message for use with statements and for distribution at meetings and schools. Both the poster and the stuffer are available in quantity without charge from the state office. They will be distributed as widely as possible at the direction of the Council during the coming year.

To Control Communicable Disease

Health authorities know that communicable disease is a bigger defense problem than injuries from battle, even among the armed forces. Among civilians every effort is needed to hold down days lost from sickness and there will be no excuse if a malignant epidemic of smallpox is allowed to work tragic and unnecessary havoc with the defense effort in Minnesota.

Physicians of Minnesota have always been ready to answer the call to arms of their country, in every branch of the selection and training of the armed forces and in the care of the wounded on the battle front. In this war more than ever before, they are extending their responsibilities as an organization to the protection of civilian health and effectiveness in the emergency.

THE PUBLIC HEALTH SERVICE LOOKS AT FREEBORN COUNTY

The report just issued by Surgeon Dean Clark of the United States Public Health Service on the medical care program of the Welfare Board of Freeborn County is of extraordinary interest to anyone who has watched Minnesota's system of medical care for recipients of relief and social security aids take shape over the last ten years.

In Freeborn County, most of the features regarded by physicians as essential to any plan

for care of the needy sick have been incorporated into the welfare policy of the county and have proved themselves to be economically sound. If all are not yet developed to the fullest expectation of the planners or to the complete satisfaction of the public health service investigator, at least an unusually satisfactory groundwork has been laid. Improvements can be made as they are needed without disturbing the general structure.

Free Choice for Patients

There is free choice of physician for all recipients of relief or social security aids in Freeborn County. This highly desirable state of affairs was established in 1938 after a long and unhappy experience with the county doctor system. Objection to free choice had previously been a matter of cost and it is to the credit of the physicians of the county that they took the initiative to abolish the county doctor system. They agreed to do the work on a prorata basis with free choice to the patient for an amount which should not exceed the funds allocated for the purpose under the county doctor plan.

It is even more to their credit that, in so doing, their medical advisory committee has established such close working relations with the county welfare board that the result is a matter of special commendation in the report of Surgeon Clark.

Praise for Doctors

Praise for this vigorous coöperation and also for the conscientiousness and effectiveness of the committee in auditing monthly bills of physicians is voiced several times in the Clark report and should be called to the attention of those who have always been skeptical of the ability of physicians' committees to regulate and discipline their own members.

Freeborn County doctors are still paid for their work on a fee basis, within the limits of a definite fund set aside by the county welfare board to cover medical services and drugs. For the year 1940 that fund amounted to \$8,500. Fees were paid according to a fee schedule which was, in many categories, considerably lower than the schedule of allowances just adopted by the Division of Social Security in consultation with the State Medical Advisory Committee and about to be recommended by Mr. Walter Finke, director, for use of welfare boards.

It is interesting to note that in terms of per

capita amounts the physicians received \$2.53 per eligible person receiving old age assistance and \$3.74 per eligible person receiving direct relief.

Is Compensation Reasonable?

On the question of whether or not this amount represents reasonable compensation to the physicians who rendered the care, Surgeon Clark makes the following observation, in his report:

"One way of getting at the answer is to find out what the average income of physicians would be if in private practice they received an amount per person in the population equivalent to their welfare income. If every person under the age of sixty-five in the county were to pay his physician an amount equal to that paid during the study year to physicians per direct relief recipient (\$3.74), the total would come to \$11,780. If to this sum were added, for every person in the country aged sixty-five or over, an amount equal to that paid per recipient of old age assistance (\$2.53), the total would be \$116,560—an average of \$4,857 each for the twenty-four physicians in active practice in the country."

The further observation made by this commentator that, on this basis, the physicians are adequately paid for their work is open to many objections. Chief among them is the fact that overhead consumes so heavy a percentage of the physician's income. The percentage runs from 25 to 50 per cent, depending upon the size and standards of the community. Assuming that Freeborn County physicians must pay an average of the median between these two, their net income on the basis arrived at by Surgeon Clark would be approximately \$3,000 a year, which is obviously far from an adequate return. Also there is the fact that many residents of all counties do not seek medical care even when they are able to pay for it and there are others who receive it as charity and are never on relief or public assistance rolls. It is extremely doubtful if the average level of gross income for the physicians of the county, even with payments made to them by the county welfare board, reaches anything approaching the estimated average.

Provision for "Medically Needy"

Other sound policies established in Freeborn County include hospitalization for a large number of recipients in the local hospital at Albert Lea; provision for medical care of the so-called "med-

ically needy," borderline cases who are not eligible for direct relief or social security aids but who cannot take care of medical and hospital bills; and vaccination and immunization for all recipients of relief and aids.

Surgeon Clark feels that the care of the medically needy is far less complete and satisfactory than the care provided for recipients of direct relief; that policies of the board for these people should be expanded and that such an expansion would be economically sound. He believes also that facilities for hospitalization within the county need expansion and that the policy with regard to handling of obstetrics should be altered to put more emphasis on prenatal care. Other recommendations have largely to do with centralization of responsibility within the welfare board and elimination of some authorization red tape between the patient and the physician.

The striking thing to anyone who knows the difficulties that have attended organization of medical relief everywhere is that nearly all of the things for which physicians have struggled for many years are completely conceded in principle here in this typical Minnesota farming community and that most of them are working out with satisfaction in practice, as they are now in most other counties of the state. Improvements will come with experience and the recommendations made by Surgeon Clark may be of assistance in hastening them. The fact remains, however, that the plan which the doctors of the county conceived and put into effect and which they are actively and unselfishly engaged in carrying forward in Freeborn County has proved its worth. The county doctor is receding rapidly from the relief picture in Minnesota.

SUGGESTED ALLOWANCE

Final copies of the schedule, prepared by the Division of Social Security, of suggested allowances for medical service to recipients of relief and public assistance were presented for inspection of the Council at the December meeting. They will be in the hands of all county welfare boards and medical advisory committees in the state by the time this issue goes to press. Additional copies will be mimeographed in the State Office and sent to members outside the large cities at an early date.

This new schedule supersedes the fee schedule

of 1937 which has been in rather general use throughout the state. It was drawn up at the direction of Mr. Walter Finke, director of the Division of Social Welfare, following an intensive study of the problem of uniform fees in rural areas by the medical unit of the division. The state-wide medical advisory committee coöperated in this study and it had the benefit of information about usual charges gathered independently by a committee of the Council from sixteen component societies representing sixty of the eighty-four rural counties of the state.

In contrast to the 1937 schedule, this new table of allowances provides in general for a reduction of $33\frac{1}{3}$ per cent instead of 40 per cent from usual fees.

The list includes 211 types of services commonly given by general practitioners. It was presented in tentative form to the Council at an earlier meeting and recognized by that body as reasonable. It is, of course, not designed for use in cities of the first class inasmuch as the law requires use of existing philanthropic agencies for the needy in the metropolitan areas.

It should be emphasized in connection with the distribution of this schedule that the county welfare boards are actually the responsible authorities in all matters of allowances and payments. The new schedule will be recommended for use but cannot be enforced under the law by the state agency.

In most parts of the state, however, recommendations from the Division of Social Welfare are taken into account, at least, and also successful working relations have been established between the county boards and local medical advisory committees.

Allowances to be paid in any specific county will necessarily be determined by the boards and committees who know the problem best and in view of local budgets and needs.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. Du Bois, M.D., Secretary

Saint Paul Chiropractor Given Four-year Prison Term
Re: State of Minnesota vs. Edward Ferdinand Jacobson

On December 9, 1941, Edward Ferdinand Jacobson, sixty-one years of age, entered a plea of guilty in the District Court of Ramsey County, Minnesota, to an information charging him with the crime of abortion.

Jacobson, who holds a license to practice chiropractic in the State of Minnesota, and who had an office at 244 Hamm Building, Saint Paul, Minnesota, was sentenced to a term of not to exceed four years in the State Prison at Stillwater, by the Hon. Albin S. Pearson, Judge of the District Court. The defendant offered to surrender his basic science certificate and chiropractic license if the Court would suspend the sentence and place him on probation. Judge Pearson told the defendant that the Court could not show him any leniency because he had a previous conviction of practicing medicine without a license that grew out of a similar case.

Jacobson was arrested on November 28, 1941, by the Saint Paul Police Department following the admission of a twenty-one-year-old Saint Paul girl to Ancker Hospital for treatment following a criminal abortion. The girl made a statement involving Jacobson and he was immediately arrested. The girl stated that she had paid Jacobson \$6.50 for his services. On December 1, 1941, Jacobson was taken to Ancker Hospital for a mental observation, but the examining physicians concluded that he was sane, and on December 6, 1941, a complaint was filed against him charging him with the crime of abortion. Jacobson was arraigned in the Municipal Court in Saint Paul, on December 8, 1941, where he waived a preliminary hearing, and was held to the District Court. On December 9, 1941, he entered a plea of guilty to an information charging him with the crime of abortion and was sentenced as reported above.

Jacobson told the Court that for thirty years he had been an employe of the Railway Mail Service, but retired in 1940 on pension. Jacobson admitted that on November 1, 1940, he had pleaded guilty in the District Court of Ramsey County, to an information charging him with the crime of practicing medicine without a license. Jacobson paid a fine of \$200.00 at that time. Jacobson cannot be heard to complain that he was not properly warned in 1940, for at that time, Judge Loevinger told him: "Should you attempt to practice any other form of medicine than chiropractic and appear in court again I suspect the court will be considerably less considerate than I think it has been this time."

A certified copy of the information filed against Jacobson and the judgment and sentence of the Court in the instant case, has been furnished the Minnesota State Board of Chiropractic Examiners, and it is expected that Jacobson's license as a chiropractor will be revoked.

Violator of State Narcotic Drug Law Ordered to Serve Prison Term

Re: State of Minnesota vs. Merten J. Stratton.

On December 16, 1941, Merten J. Stratton, forty-five years of age, 914 E. 19th Street, Minneapolis, was ordered to serve a prison sentence previously imposed upon him for violating the Minnesota Uniform Narcotic Drug Act. The order was issued by the Honorable Joseph J. Moriarty, Judge of the District Court of Scott County, Minnesota, where Stratton had pleaded guilty on April 2, 1940, to an information charging him with the crime of obtaining narcotic drugs by fraud and deceit. At the time of entering his plea, Stratton was sentenced to the State Prison at Stillwater for a term of not to exceed five years. The sentence was suspended on the condition that the defendant enter the Federal Narcotic Hospital at Lexington, Kentucky, for treatment for drug addiction. Stratton entered the hospital at Lexington, Kentucky, on May 6, 1940; however, he

refused to stay there and returned to Scott County early in August of that year. Stratton was subsequently committed by the Probate Court of Scott County, to the Willmar State Hospital for further treatment. On May 3, 1941, Stratton was paroled from that institution.

Immediately thereafter Stratton and his wife purchased a small grocery store at 914 E. 19th Street, Minneapolis. In October Mrs. Stratton obtained two prescriptions from two Minneapolis physicians for morphine sulphate. Shortly thereafter a third Minneapolis physician was called to the store and upon being asked for narcotics, not only declined the request, but reported the matter immediately to the Federal Bureau of Narcotics at Minneapolis. In the investigation that followed Stratton admitted to the acting narcotic supervisor that he had obtained part of the morphine sulphate from Mrs. Stratton.

On December 13, 1941, Mr. Julius A. Coller II, county attorney of Scott County, filed a petition with the District Court asking that all previous stays be vacated and Stratton ordered taken to the State Prison at Stillwater to serve his sentence. Mr. Coller's petition was supported by an affidavit from Mr. A. B. Crisler, acting narcotic supervisor for this district. Judge Moriarty immediately made an order revoking the previous stays and ordered the defendant committed. The defendant was promptly arrested and through legal counsel asked for a hearing on the merits, which was given him on December 16, 1941. Following the hearing, Judge Moriarty announced that the order previously entered would stand and that the defendant was to be immediately taken into the State Prison at Stillwater to commence his sentence. The Court fixed the period of his imprisonment at a year and a day.

Stratton has a long record of law violations. On October 18, 1922, he pleaded guilty in the District Court of Ramsey County to forgery in the third degree and was sentenced to a term of not to exceed five years in the State Reformatory at St. Cloud, Minnesota. When Stratton was sentenced in 1922, he stated to the Court that he had been a drug addict for ten years. In 1932, Stratton served 14 months in jail in Los Angeles, California. Stratton admitted that this sentence was in connection with forgery of narcotic prescriptions. Early in 1937, Stratton was sentenced to the Minneapolis Workhouse for ninety days for vagrancy. He was sentenced at that time under the name of Harry Martin. In September, 1937, Stratton was sentenced in Federal Court in Minneapolis to six months in the Minneapolis Workhouse for forgery of narcotic prescriptions. On February 13, 1940, Stratton was sentenced to ninety days in the Minneapolis Workhouse for violating the Minneapolis City Narcotic Ordinance. He was given a suspended sentence of ninety days.

The Minnesota State Board of Medical Examiners wishes to again caution the medical profession about furnishing narcotics to such individuals. It is a violation of state and federal laws for a physician to administer, dispense or prescribe narcotics to anyone except in the bona fide practice of medicine. This presupposes a thorough examination of the patient and a determination that the patient has some substantial ailment for which it is proper to furnish narcotic drugs. The fact that prompt action was taken in the instant case is due, in part, to the good judgment displayed by the Minneapolis physician who declined to furnish Stratton with any morphine, and who promptly reported the matter to the Federal Bureau of Narcotics. Very fine cooperation was received in this case from the Federal Bureau of Narcotics, and particularly from Mr. A. B. Crisler, acting supervisor of that department at Minneapolis, and also from Mr. Julius A. Coller II, County Attorney of Scott County, Minnesota.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

PHYSICIANS LICENSED NOVEMBER 13, 1941

By Examination

- Arthur, Lawrence Milton, U. of Minn., M.B. 1940, Minneapolis General Hospital, Minneapolis, Minn.
- Bayliss, Milward, U. of Chicago, M.D., 1941, 1853 W. Polk St., Chicago, Ill.
- Benson, Allan Joseph, U. of Minn., M.B. 1941, 706 Delaware St. S. E., Minneapolis, Minn.
- Blaisdell, Jack Schoonmaker, Yale U., M.D. 1940, Mayo Clinic, Rochester, Minn.
- Botha, Eleanor, U. of Minn., M.B. 1941, University Hospital, Minneapolis, Minn.
- Brandes, Robert Warren, U. of Minn., M.B. 1941, Minneapolis General Hospital, Minneapolis, Minn.
- Brigham, Charles Fay, Jr., U. of Minn., M.B. 1941, Ancker Hospital, Saint Paul, Minn.
- Brilhart, Kenneth Bortner, U. of Oregon, M.D. 1940, Mayo Clinic, Rochester, Minn.
- Brindley, George Valter, Jr., U. of Texas, M.D. 1939, Mayo Clinic, Rochester, Minn.
- Cooper, Talbert, Emory U., M.D. 1939, Mayo Clinic, Rochester, Minn.
- Corbitt, Richard Wyle, U. of Maryland, M.D., 1939, Mayo Clinic, Rochester, Minn.
- Crawford, James Harry, U. of Minn., M.B. 1938, M.D. 1939, University Hospital Minneapolis, Minn.
- Davidson, John Griffiths, U. of Minn., M.B. 1941, St. Mary's Hospital, Duluth, Minn.
- Downing, George Columbia, Stanford U., M.D. 1940, Mayo Clinic, Rochester, Minn.
- Emerson, Edwin Elroy, U. of Iowa, M.D. 1940, Proctor, Minn.
- Erickson, Donald Johan, U. of Colorado, M.D. 1940, Mayo Clinic, Rochester, Minn.
- Fazen, Louis Edward, Jr., Northwestern, M.B. 1940, M.D. 1941, Ancker Hospital, Saint Paul, Minn.
- Fahlund, Geo. Thorwald Rudolph, Rush Med. Col., M.D. 1938, Mayo Clinic, Rochester, Minn.
- Graham, Frederick Martin, Northwestern, M.B. 1940, M.D. 1941, Mayo Clinic, Rochester, Minn.
- Hammes, Ernest Macfarlane, Harvard, M.D. 1941, Ancker Hospital, Saint Paul, Minn.
- Hanson, Carl Alfred, U. of Minn., M.B. 1940, Minneapolis General Hospital, Minneapolis, Minn.
- Hanson, Norbert Orrin, U. of Minn., M.D. 1941, Ancker Hospital, Saint Paul, Minn.
- Hayden, Charles Gilbert, U. of Minn., M.B. 1940, Minneapolis General Hospital, Minneapolis, Minn.
- Haynes, Allan Louis, U. of Louisville, M.D. 1938, Mayo Clinic, Rochester, Minn.
- Hilton, Hiram David, Rush Med. Col., M.D. 1939, Mayo Clinic, Rochester, Minn.
- Hodgson, Jane Elizabeth, U. of Minn., M.B. 1939, M.D. 1940, Mayo Clinic, Rochester, Minn.
- Hoynes, Robert Maclay, Northwestern, M.B. 1940, M.D. 1941, Mayo Clinic, Rochester, Minn.
- Hultgen, William James, Loyola, M.D., 1941, Minneapolis General Hospital, Minneapolis, Minn.
- Hunter, Oscar Benwood, Jr., Georgetown U., M.D. 1940, Mayo Clinic, Rochester, Minn.
- Jessup, Richard, Johns Hopkins, M.D. 1939, University Hospital, Minneapolis, Minn.
- Johnson, Howard Elmer, U. of Minn., M.B. 1941, Miller Hospital, Saint Paul, Minn.
- Kauvar, Abraham Judah, U. of Chicago, M.D. 1939, Mayo Clinic, Rochester, Minn.
- Keil, Marcus Augustine, U. of Iowa, M.D. 1940, 5231 Xerxes Ave. S., Minneapolis, Minn.
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- Keskey, Theodore John, U. of Minn., M.B. 1940, M.D. 1941, Dwight Mfg. Co., Alabama City, Ala.
- Koepeke, Earl Hilmer, U. of Ill., M.D. 1941, Ancker Hospital, Saint Paul, Minn.
- Larson, Ralph Hertrich, U. of Minn., M.B. 1940, M.D. 1941, Tenney, Minn.
- Latchem, Charles Wells, Duke U., M.D. 1939, Mayo Clinic, Rochester, Minn.
- Lima, Ludvig Reinhart, U. of Minn., M.B. 1940, M.D. 1941, Pioneer Hall, University of Minn., Minneapolis, Minn.
- Lovshin, Leonard Louis, U. of Wis., M.D., 1939, Mayo Clinic, Rochester, Minn.
- Martin, William B., U. of Minn. M.B. 1941, Milwaukee Co. Hospital, Wauwatosa, Wis.
- McMillan, James Thompson, III., U. of Minn. M.B. 1941, Presbyterian Hospital, Chicago, Ill.
- Messler, Joseph Dicus, U. of Cincinnati, M.B. 1939, M.D. 1940, Mayo Clinic, Rochester, Minn.
- Meyer, Alfred Charles, Northwestern, M.B. 1939, M.D. 1940, Mayo Clinic, Rochester, Minn.
- Murphy, Joseph Emmett, U. of Minn., M.B. 1940, Minneapolis General Hospital, Minneapolis, Minn.
- Nay, Richard Marion, Indiana U., M.D. 1938, Mayo Clinic, Rochester, Minn.
- Nesse, Gerhard Martin, U. of Minn., M.B. 1941, Ancker Hospital, St. Paul, Minn.
- Nixon, Robert Read, Duke U., M.D. 1940, Mayo Clinic, Rochester, Minn.
- O'Keefe, James Patrick, Marquette U., M.D. 1941, Norwood Hospital, Birmingham, Ala.
- Porter, Charles Bagley, Johns Hopkins, M.D. 1939, Mayo Clinic, Rochester, Minn.
- Russ, Frank Henry, McGill U., M.D. 1939, Mayo Clinic, Rochester, Minn.
- Scales, James Russell, Indiana U., M.D. 1938, Mayo Clinic, Rochester, Minn.
- Schafer, Leon Anthony, U. of Minn., M.B. 1940, M.D. 1941, Minneapolis General Hospital, Minneapolis, Minn.
- Scheetz, Raymond John, Ohio State U., M.D. 1940, Mayo Clinic, Rochester, Minn.
- Seefeld, Philip Henry, U. of Pa., M.D. 1939, Mayo Clinic, Rochester, Minn.
- Sevenants, John Julius, U. of Minn., M.B. 1941, Minneapolis General Hospital, Minneapolis, Minn.
- Seybold, William Dempsey, U. of Texas, M.D. 1938, Mayo Clinic, Rochester, Minn.
- Sher, Lewis, U. of Minn., M.B. 1940, Minneapolis General Hospital, Minneapolis, Minn.
- Smalley, Raymond Edwin, Northwestern, M.B. 1939, M.D. 1940, Mayo Clinic, Rochester, Minn.
- Stout, Hugh Albert, Okla. Univ., M.D. 1937, Mayo Clinic Rochester, Minn.
- Taylor, Charles Bruce, U. of Minn., M.B. 1940, M.D. 1941, University of Minn., Dept. of Phys., Minneapolis, Minn.
- Todd, Ramona Lucile, U. of Minn., M.B. 1941, University Hospital, Minneapolis, Minn.
- Vadheim, Lewis A., U. of Minn., M.B. 1941, Minneapolis General Hospital, Minneapolis, Minn.
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- Wheeler, David Riddell, U. of Minn., M.B. 1940, M.D. 1941, 2212 Girard Ave. S., Minneapolis, Minn.
- Wikoff, Howard Max, U. of Minn., M.B. 1940, Minneapolis General Hospital, Minneapolis, Minn.
- Wilhelm, Agatha Marie, Northwestern, M.B. 1935, M.D. 1936, Mayo Clinic, Rochester, Minn.
- Winter, Irwin Floyd, Rush Med. Col., M.D. 1939, Mayo Clinic, Rochester, Minn.
- Zuschlag, Ella, U. of Texas, M.D. 1939, University of Minn., Dept. of Path., Minneapolis, Minn.

By Reciprocity

Batty, John Langdon, U. of Neb., M.D., 1938, Adams Hospital, Hibbing, Minn.
 Christensen, Clarence Henry, U. of Iowa, M.D. 1940, 2019 E. 2nd St., Duluth, Minn.
 Dorwart, Harry E., Creighton U., M.D. 1927, Granite Falls, Minn.
 Karleen, Bernard Nicholas, U. of Minn., M.B. 1938, M.D. 1939, Balaton, Minn.
 Palmer, Clara Frances, U. of Okla., M.D. 1940, State Hospital, Moose Lake, Minn.
 Preston, Frederick Willard, Northwestern, M.B. 1939, M.D. 1940, Mayo Clinic, Rochester, Minn.
 Ruona, Martin Albert, Marquette U., M.D. 1937, Federal Correctional Institute, Sandstone, Minn.
 Stilwell, George Giles, Jr., Wayne U., M.B. 1934, M.D. 1935, Mayo Clinic, Rochester, Minn.
 Wallace, William Byron, Stanford, M.D. 1938, Mayo Clinic, Rochester, Minn.
 White, Carl Wilma, Jefferson Med. Col., M.D. 1923, State Hospital, Rochester, Minn.

National Board Credentials

Abbott, Kenneth Harvey, Col. of Med. Evang., M.D. 1936, Mayo Clinic, Rochester, Minn.
 Bruder, Victor Francis Joseph, Loyola U., M.D., 1937, 135 E. King St., Winona, Minn.
 Campbell, Charles Macfie, Jr., Harvard U., M.D. 1937, Mayo Clinic, Rochester, Minn.
 Treusch, Jerome Victor, Northwestern, M.B. 1939, M.D. 1940, Mayo Clinic, Rochester, Minn.
 Walker, Stephen Archie, U. of Minn., M.B. 1940, M.D. 1941, Minneapolis General Hospital, Minneapolis, Minn.

In Memoriam

James Cox Markoe

Dr. James Cox Markoe, pioneer physician in Saint Paul for sixty years, died at his home at the age of eighty-five, November 28, 1941, following an illness of about one year.

Dr. Markoe was born in Saint Paul, August 13, 1856, the son of William and Maria Cox Markoe. His early education was attained at the old Cathedral School in Saint Paul, at the Petit Seminaire in Meximieux, France, and the Seminary of Our Lady of Angels, Niagara Falls, New York. His medical education was received at Jefferson Medical College in Philadelphia, where he obtained the degree of Doctor of Medicine in 1882. Following this he served his internship at the Philadelphia City Hospital. After this was accomplished he returned to Saint Paul and began the practice of medicine in association with Dr. D. W. Hand. Licensing of physicians in the State of Minnesota began shortly after this, and his license was the second issued in the state, a distinction of which he was very proud. Dr. J. Owen, chairman of the Board of Medical Examiners, held license number one.

In 1885 he married Mary A. Prince, daughter of John S. Prince, former Mayor of the City of Saint Paul. To this union, nine children were born, of whom seven are living. The sons are Reverend John P. of St. Louis, Missouri, Reverend Wm. M. of Mankato, Minnesota, James C., Francis A., and Robert P., of Saint Paul,

Minnesota. The daughters are Sister Anne Marie, and Sister Mary Joseph of the Visitation Sisters in St. Louis, Missouri.

Dr. Markoe was the attending physician for many years to the Saint Paul Seminary, The College of St. Thomas, Little Sisters of the Poor and St. Joseph's Orphanage. An intensely religious man, he was extremely conscientious in his medical work. One of his proudest boasts was that he never lost a mother in childbirth in all the years of his practice. He was a member of the Minnesota State Medical Association and the Ramsey County Medical Society and was its president in 1888.

His kindly ministrations endeared him to all his patients and friends. He was always willing to render a benevolent and helping hand to his colleagues in the profession, particularly to the younger members, of whom many learned truths acquired only through years of experience such as his. Possessed of a keen sense of humor he enjoyed life in its simplicity, which made his home an attractive haven to his family, relatives and friends.

JOHN M. CULLIGAN

Lemuel M. Roberts

Dr. Lemuel M. Roberts died October 9, 1941, at his home in Little Falls, Minnesota. He was seventy-nine years of age.

Dr. Roberts was born in Glendale, Ohio, February 3, 1862, the son of Britton and Hester (Martin) Roberts. He attended the public schools of Cincinnati and spent three years at Urbana University, Urbana, Ohio, and one year at the University of Cincinnati. He studied medicine at the Michigan Homeopathic Medical College at Ann Arbor and at the Hahnemann Medical College of Philadelphia, receiving his M.D. degree there in 1883. After graduation he served as physician and surgeon at the *Quapaw* Agency, Oklahoma, until 1885 when he moved to Brainerd, Minnesota.

In 1890 Dr. Roberts went to Little Falls, where he had since practiced except for postgraduate work in London, Berlin and Vienna. He took postgraduate work in Chicago on two subsequent occasions.

In 1887 Dr. Roberts married Helen Gertrude Cooley. Mrs. Roberts died in 1896 and Dr. Roberts was married in 1904 to Ida M. Deppman, who with one son, Clifton Shears Roberts of Seattle, survives.

Dr. Roberts was an active member of the Upper Mississippi Medical Society, the Minnesota State and American Medical Associations for many years. He was at one time vice-president of the Minnesota State Medical Association.

Dr. Roberts was injured March 6, 1936, in an airplane accident near Sleepy Eye while taking a patient to Rochester. He retired in February, 1938, from active practice, in part as a result of the accident.

In every mental institution tuberculosis is a problem of first order. Of the deaths from tuberculosis in the United States, 5.2 per cent occur in mental hospitals while only 15.9 per cent are in tuberculosis hospitals. M. POLLAK, M.D., et al. *Amer. Rev. of Tuberc.*, March, 1941.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

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G. L. Berdez, Duluth

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W. S. Lemon, Rochester
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O. H. Wangenstein, Minneapolis
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OUR DEFENSE OPPORTUNITY IN INDUSTRIAL HEALTH

THE serious situation in which our nation now finds itself carries with it added responsibilities to the medical profession. Nowhere is the increased load of more direct importance than in Industrial Health. We have recently been told that the essential defense industries will call for the combined labor of fifty-five million individuals. If our all-out effort parallels that of Canada and our other allies, many of these workers will be women. This will further increase the need for intelligent medical coöperation.

The past decade has been marked by increased interest on the part of industrial leaders in the welfare of their employes. On the Iron Ranges of Minnesota some of the most ruthless operators of a few years ago now support whole departments given over to safety planning, safety instruction, accident prevention, good medical aid in accidents and finally medical hygiene. The latter is practiced by yearly physical examinations including chest x-rays and all types of advanced methods for promoting and preserving good health among all employes and their families. What has occurred in this area is but a sample of the progress being made everywhere in industry.

Materials being manufactured for defense will in many instances give rise to new medical problems. Extensive research is being carried on by the United States Public Health Service. The following quotation from its November bulletin covers the matter nicely. "During the current year, the Research Section of the Division of Industrial Hygiene, National Institute of Health, has been engaged in over 125 research projects, and at present has ninety-one such projects in progress. These studies concern the toxicology of organic substances; the toxicology of inorganic substances; industrial pathology and bacteriology; analytical methods and services; changes in pressure, temperature and humidity, including aviation medicine; and physics (physical methods).

Some of these problems will be completed during the current year, and twenty-five additional problems have been outlined for investigation in the near future.

"Over 90 per cent of the present work of the Research Section is associated with problems pertinent to national defense. Particular emphasis is being placed on studies of the toxicity of substances such as explosives, solvents, metals used in airplane and munitions manufacture, and components of synthetic rubbers and plastics, and on investigations relating to the effects of high altitudes and crowded living conditions, as well as to the development of field instruments for the detection and measurement of toxic dusts, fumes, and gases.

"One of the most important problems under investigation is that of the toxicity of explosives. At present, the study is limited to determining the toxic effects of explosives administered by mouth. However, as soon as an experimental chamber now under construction has been completed, the scope of the study will be extended to include the determination of the toxic effects of vapors, fumes, and dusts."

The excellent work in this department being done by Dr. L. W. Foker of the State Board of Health deserves our coöperation. His investigation program is being well received by both industry and labor and should be appreciated by the medical profession. If we are to preserve our system of practice it must be on the basis of full understanding of and service to the public. Nowhere can we gain the support of a more militant group than in the ranks of labor. We must lead the field, not wait and be forced to follow medical dictates from nonmedical forces. Now when all citizens are united in the defense of our country let medicine be armed and at work. Industrial Health offers a more important field today than ever before.

J. LAWRENCE McLEOD.

TRANSACTIONS of the MINNEAPOLIS SURGICAL SOCIETY

OFFICE TREATMENT OF SOFT TISSUE INFECTION SUPPLEMENTED WITH X-RAY THERAPY

R. E. HULTKRANS, M.D.

Minneapolis, Minnesota

(Abstract of article presented for Minneapolis
Surgical Society)

The use of deep x-ray therapy in the treatment of soft tissue infection has proven a valuable adjunct in the office treatment of soft tissue infection. The particular value has been that many of these patients can be kept ambulatory. Cases for radiation are carefully selected largely from experiences we have had in the past.

For the purposes of discussion, this classification of soft tissue infection is used:

1. Paronychia.
2. Furuncles.
3. Boils and small abscesses.
4. Carbuncles.
5. Cellulitis and erysipelas.
6. Miscellaneous.

Paronychia respond so quickly to simple incision that rarely x-ray therapy becomes necessary. In some of the chronic paronychia, however, good results have been obtained.

The use of x-ray in the treatment of furuncles seems to be of value only when given extremely early in an attempt to abort the furuncle and prevent the formation of a pustule and subsequent drainage. After a pustule is formed in a furuncle, x-ray therapy is of little value.

Much the same can be said about small abscesses. We feel that they must receive treatment early if it is to be of value. Some of the boils and small abscesses will break down and localize more rapidly following x-ray therapy, and subsequent incision and drainage will be necessary.

The use of x-ray in carbuncles is probably the oldest form of infection treated by this method. We feel very specifically that all carbuncles should be radiated and then treated immediately afterwards with surgery.

The most spectacular success in the use of x-ray therapy on soft tissue infection undoubtedly occurs in the treatment of spreading types of surface infection, such as cellulitis and erysipelas. A series of seventeen cases of cellulitis was reported, 90 per cent of which recovered under five days without drainage or special dressing.

The treatment of frank erysipelas with x-ray also gives spectacular results, and we have had four such cases with prompt recovery within three or four days.

Miscellaneous types of treatment, which have been tried, are as follows:

One case in which a large knitting needle entered the knee joint and broke off. The patient was not seen until twenty-four hours later, and the possibility of infection was considered. If we incised and explored the knee and subsequent infection developed, the operation might be blamed for such infection, and there would be no way of knowing whether or not the infection had been introduced by the needle. Prophylactic x-ray treatment of the knee joint was given, and a period of two weeks elapsed before exploration of the knee was done. Primary healing occurred without infection. There may or may not have been any benefit from the use of x-ray, but certainly there was no harm.

Chronic infections such as draining sinuses over a long period of time fail almost uniformly to respond to deep x-ray therapy.

Extensive soft tissue infections, particularly in extremities where there is danger of osteomyelitis, likewise fail to respond almost uniformly to the use of deep x-ray therapy.

Conclusions

The use of x-ray therapy in the treatment of soft tissue infections has its greatest value in the treatment of cellulitis- or erysipelas-like infection. Its value in other acute infections depends largely on the promptness with which it is administered after first appearance of symptoms.

Discussion

DR. L. H. FOWLER: Each year at the Students' Health Service, University of Minnesota, I treat hundreds of cases of superficial infections and a few deep cellulitis type of infections. Several years ago, I sent a considerable number of these patients to Dr. Stenstrom for x-ray therapy hoping we could improve our results. I am sorry to say that the results from x-ray therapy in my experience have been very disappointing. I have tried x-ray therapy in all stages of single and multiple furunculosis and cannot see where the process has either been aborted, prevented from spreading, or the usual course materially altered. In my experience, rest, hot wet packs until localization has occurred, followed by adequate incision and drainage is still the best treatment.

BIRTH RATE IS UP, DEATH RATE UNCHANGED

America's birth rate is on the increase, the current vital statistics bulletin of the Commerce Department reveals.

Provisional figures for the first nine months of 1941 for 43 reporting states and the District of Columbia show a crude birth rate increase over the same period last year from 17.9 to 18.9 per 1,000 population.

The crude death rate for October, 1941, for the same states was constant at 9.8 per 1,000 population as compared with October, 1940.—*Science News Letter, December 27, 1941*

PROCEEDINGS of the MINNESOTA ACADEMY OF MEDICINE

Meeting of November 12, 1941

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, November 12, 1941. Dinner was served at 7 o'clock and the meeting was called to order at 8 o'clock by the President, Dr. John M. Armstrong.

There were 46 members and 2 guests present.

Minutes of the October meeting were read and approved.

There being no business to come before the Academy, the scientific program followed.

NEPHROPEXY FOR THE RELIEF OF PAIN IN ABNORMAL RENAL MOBILITY

Results in 100 Cases, with Particular Reference to the Selection of Cases for Operation

PHILIP F. DONOHUE, M.D.

Dr. Donohue, of St. Paul, read his Inaugural Thesis on the above subject. Lantern slides and charts were shown. (To be published in full at a later date in MINNESOTA MEDICINE.

Discussion

DR. F. E. B. FOLEY, Saint Paul: First of all, I compliment Dr. Donohue on one of the best presentations of the subject of "Nephropexy" I have ever heard.

As Dr. Donohue indicated, I was pretty closely associated with him in management of most of the cases he has presented. This contact began with Dr. Donohue's association with me at the Ancker Hospital about fifteen years ago and continued during the years we were in practice together up to 1934.

In 1929 I presented at this Academy an admission thesis entitled "New Methods for Exposure of the Kidney and for Nephropexy." The original surgical methods described in that paper are the methods employed in these cases of Dr. Donohue. That paper dealt only with the surgical methods I originated and with more or less general consideration of the indications for and the value of nephropexy. It was intended at that time to present at a later date the results achieved by the methods described. Dr. Donohue has relieved me of that job. His careful analysis of the ensuing cases in the hands of us both answers all the questions for which I intended to seek answers.

In the paper twelve years ago I said, "Nephropexy has a well-earned disrepute." Dr. Donohue has not disproved that assertion for nephropexy still has a well-earned disrepute when employed in cases not containing indications for the operation. Despite one's best effort and greatest care, there will be a certain incidence of such cases in the hands of any surgeon who attempts to give nephropexy a fair trial. In this series of carefully studied cases there was complete relief in 50 per cent, moderate relief in 24 per cent, slight relief in 12 per cent, and no relief in 14 per cent. These results are good answer to the blanket condemnation of nephropexy made by some critics. I am sure the results compare favorably with the results of operation for "chronic appendicitis."

DR. L. C. BACON, Saint Paul: Dr. Donohue's exhaustive paper is to be commended and the incision portrayed by him, for the anchoring of a fallen kidney,

is the incision usually employed; but it calls to mind the incision employed by the older Lundholm, with its advantages. His incision was made at the margin of the rectus muscle, the peritoneum was pushed aside, and the kidney anchored. This incision gave him an opportunity to examine the abdominal contents. His dexterity in this avenue of approach was great and gave much evidence to commend it.

DR. GILBERT J. THOMAS, Minneapolis: It is very fortunate that Dr. Donohue has had this opportunity of making a follow-up and subsequent report of the results obtained in the surgical treatment for nephroptosis. Reports of this character are very timely because there has been so much unnecessary surgical treatment done for the relief of so-called floating kidneys.

It is only a few years ago that articles ceased to appear in surgical journals that contained descriptions of new methods for anchoring the kidneys so that these organs would not again become loose.

Many of the failures to relieve symptoms were thought to be due to a faulty technic in the surgical operation which did not fix the kidney permanently in its normal position. The return of symptoms was not due to loosening of the kidney from its anchored position, but to errors in the selection of the proper cases for this operation. One cannot expect to relieve symptoms not produced by a mal-position of the kidney following the anchoring of this organ in a new position.

When a surgeon does an operation for nephroptosis, careful inspection of the uretero-pelvic junction should always be made. In this area anomalous blood vessels, connective tissue bands, and other obstructions may be present and many of these are congenital in origin. These are so important that from my own experience I know that a ptosed kidney would not because of its low position produce obstruction in the ureter if it were not for the kinking that occurred and was produced by a band and anomalous blood vessels that crossed the ureter and therefore held it in position and produced a kink.

The various surgical techniques that are employed to anchor the kidney must take into account the comparative anatomy of the normal kidney in its normal position. If a portion of the fibrous capsule of the kidney is removed from the posterior or convex surface of the kidney, this denuded area will become densely adherent to the adjacent tissues. This union is very firm. I have observed how firm, when I have attempted to remove kidneys surgically that had been previously anchored. A nephrectomy under these circumstances is very difficult. The kidney capsule must be removed by sharp dissection.

DR. MOSES BARRON, Minneapolis: I was very much impressed with the large series of cases reported tonight and the very favorable outcome resulting from nephropexy. This is quite contrary to the opinion I have always held on the importance of nephropexy for nephroptosis. We see cases of nephroptosis very commonly. It is generally stated that from five to fifty per cent of the cases of women alone will show a descent of the kidneys, usually the right. Some of these kidneys are easily felt low down in the abdomen. Most of these patients do not show any symptoms at all as a result of the ptosis, but many of them have symptoms. In my experience, most of those who do show symptoms have an associated general enteroptosis or Glénard's disease. In cases where there is a general enteroptosis, it is doubtful if the symptoms would be relieved by mere fixation of the kidney. Dietl, in 1864, described this condition which later was given the name of Dietl's

crisis. He gave a very accurate description of the symptoms and findings. He stated that his cases were promptly relieved by the application of abdominal belts. Many of us feel that this is true. Properly applied abdominal supports, with a pad in the region of the kidney, will give good results because by this means we give support to the loose abdominal wall at the same time and this prevents the sagging of the abdominal viscera. There is no doubt that some of these cases should obtain relief from nephropexy alone.

I happen to have had a very unusual case which made me interested in this subject many years ago. In 1922 a man came with a variety of complaints of pain in the abdomen for which he had had several operations but without relief. He had had his appendix removed and his gall bladder excised. When I saw him, he apparently had reached the stage where the diagnosis was not so very difficult because his right kidney had descended so that it was easily palpated, especially during an attack. When x-rays were made they showed a very sharp kink of about 45 degrees at the pelvic ureteral junction. The patient was given a belt and instructed to wear it continuously. From then on, he had no more trouble. The belt gave him complete relief.

I feel that many of these patients get good results by wearing properly-fitted belts. I think that the essayist himself tonight showed that one of his patients had good relief after such a support was applied.

DR. FOLEY: As a matter of fact, this is not a "large series of cases." The series covers a period of sixteen years and was supplied by the urologic service of an 800-bed charity hospital—the Ancker, the private prac-

tice of Dr. Donohue, and my own private practice. The 100 cases forming Dr. Donohue's material came from these three sources over a period of sixteen years, which actually is only eight cases a year. So, in proportion to the volume of the source, the actual number of cases is relatively small.

DR. DONOHUE (closing): Dr. Foley has already said what I was going to say in reply to Dr. Barron's comments concerning the occurrence of nephroptosis in cases of general visceroptosis. Visceroptosis was not present in the series just reported, but the condition was found on x-ray examination of the gastrointestinal tract in other cases not treated by nephropexy. Referring to the use of a kidney pad instead of performing nephropexy, Hinman has shown by urography that these pads are often completely ineffective in restoring the kidney to a favorable position in the renal fossa. In the cases with fixation of the upper ureter by inflammatory adhesions or anomalous blood vessels, the pad hardly could be expected to affect the mal-relationships between the kidney pelvis and the ureter. The use of pads in the treatment of nephroptosis is considered passé by many surgeons. The belt mentioned in case No. 14 was an orthopedic sacroiliac belt and was not a supporting belt for the abdomen.

I want to thank the members for their kind discussions of my paper.

The meeting adjourned.

E. V. KENEFICK, M.D.,
Secretary

REPORTS and ANNOUNCEMENTS

MEDICAL BROADCAST FOR JANUARY

The Minnesota State Medical Association broadcasts weekly at 10:45 o'clock every Saturday morning over Station WCCO, Minneapolis; Station WLB, University of Minnesota, and KDAL, Duluth.

Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

January 3—Thyroid Gland
January 10—Pituitary Gland
January 17—The Pancreas
January 24—Adrenal Gland
January 31—Dental Health Education

trips on Wednesday, January 14. A clinical program of a practical nature has also been arranged at the University of Illinois College of Medicine for the same date.

MINNESOTA PATHOLOGICAL SOCIETY

The program for the January 20 meeting of the Minnesota Pathological Society will include the following papers:

"Orthostatic Hypotension" by Drs. Philip Hallock and Gerald T. Evans.

"Transfusion Reactions Due to Rh Factor" by Dr. G. N. Aagaard.

NINTH E. STARR JUDD LECTURE

Dr. Frederick A. Collier of Ann Arbor, Michigan, Professor and Director of the Department of Surgery at the University of Michigan Hospital, will give the ninth E. Starr Judd lecture at the University of Minnesota in the Chemistry Auditorium on Wednesday, January 21, 1942, at 8:15 p.m. The subject of Dr. Collier's lecture is "A Review of Studies on Water and Electrolyte Balance in Surgical Patients."

The late E. Starr Judd, an alumnus of the Medical School of the University of Minnesota, established this annual lectureship in surgery a few years before his death.

CONGRESS ON INDUSTRIAL HEALTH

The fourth annual Congress on Industrial Health, sponsored by the American Medical Association, will be held Monday and Tuesday, January 12 and 13, 1942, at the Palmer House in Chicago. The meetings are open to physicians and others interested in industrial health. A dinner and round table discussion intended primarily for state and county medical society committees on industrial health will be held Monday evening. Addresses will occupy morning and afternoon sessions. Those interested in details of industrial medical department administration will be enabled to make field

CLAY-BECKER MEDICAL SOCIETY

Dr. H. G. Rice of Moorhead is the newly elected president of the Clay-Becker Medical Society, which held a joint meeting with the Auxiliary in Moorhead, December 17.

Dr. O. O. Larsen of Detroit Lakes was named vice president; and Dr. E. G. Ingebrigtsen of Moorhead, secretary-treasurer. Dr. J. W. Duncan of Moorhead was elected delegate to the state medical association convention.

Guest speaker at the meeting was Dr. H. Z. Giffin of Rochester, president of the state association, who addressed members on "Our Part in National Defense." He also spoke on "Certain Blood Diseases," and led a discussion on "Anemias."

GOODHUE COUNTY MEDICAL SOCIETY

Dr. L. A. Steffens of Red Wing was elected president of the Goodhue County Medical society, December 18, following a joint dinner meeting and Christmas party with the Auxiliary at the St. James hotel in Red Wing.

Dr. R. V. Sherman was chosen vice president; Dr. R. F. Hedin, delegate; and Dr. M. W. Smith, alternate delegate. All are of Red Wing.

Dr. Walter Schafer of Zumbrota was admitted to membership.

KANDIYOHI-MEEKER-SWIFT COUNTY MEDICAL SOCIETY

At the regular meeting of the Kandiyohi-Meeker-Swift County Medical Society held in Willmar, December 17, the following officers were elected: Dr. F. P. Frisch, president; Dr. D. L. Jacobs, vice president; and Dr. E. H. Frost, secretary. All are of Willmar.

Dr. Hans Johnson of Kerkhoven is the retiring president.

WASHINGTON COUNTY MEDICAL SOCIETY

Officers elected at the annual meeting of the Washington County Medical Society, December 9, were: Dr. Ray G. Johnson, president; Dr. Carnot H. Sherman, first vice president; Dr. George McC. Ruggles, Forest Lake, second vice president; Dr. E. Sydney Boleyn, secretary-treasurer and also delegate. Dr. Wade R. Humphrey was named alternate.

Elected censors were Drs. J. W. Stuhr, R. J. Josewski and E. V. Strand of Bayport.

RAMSEY COUNTY MEDICAL SOCIETY

Dr. W. R. McCarthy of Saint Paul was chosen president-elect of the Ramsey County Medical Society at its annual election of officers, November 24. He will take office in 1943, succeeding Dr. Carl B. Drake, who serves as president during 1942.

Dr. James C. Ferguson was elected vice president and Dr. Joseph M. Ryan, secretary-treasurer of the society for 1942.

Dr. Joseph F. Borg, retiring president, presided at the meeting which was attended by approximately 125 members of the organization.

Members were also elected to the advisory, library, laboratory, judiciary committees, the Boeckmann library building fund committee, and as delegates and alternates to the annual state convention.

RED RIVER VALLEY MEDICAL SOCIETY

Dr. D. V. Boardman of Twin Valley was named to head the Red River Valley Medical Society at its annual meeting in Crookston, December 11. Dr. A. S. Berlin of Hallock was elected vice president, and Dr. C. L. Oppegaard of Crookston was renamed secretary-treasurer.

As delegates to the state medical convention the physicians elected Dr. J. F. Norman of Crookston and Dr. H. M. Blegen of Warren.

The election followed a banquet at the Hotel Crookston, which was attended by physicians and their wives. The Auxiliary was entertained at the home of Mrs. C. G. Uhley during the evening, while physicians heard a medical paper on "Anemia" presented by Dr. H. Z. Giffin of Rochester, president of the state association.

WOMAN'S AUXILIARY

MRS. JOHN J. RYAN, *President*
Saint Paul, Minnesota

MRS. L. R. BOIES, *Publicity Chairman*
Knollwood, Hopkins, Minnesota

STATE BOARD MEETING

The Executive Board of the Women's Auxiliary to the Minnesota State Medical Society met Friday, October 17, at the University Club in Saint Paul, with Mrs. John J. Ryan, the president, presiding. Mrs. Roscoe E. Mosiman of Seattle, Wash., president of the National Auxiliary, was present. Reports were given by the officers and committee chairmen, after which the meeting was adjourned for luncheon, to be reconvened later.

The luncheon, also held at the University Club, had been arranged by Mrs. Lloyd G. Dack, Saint Paul. Forty-eight people were present. Among those were Mrs. Wengart, State program chairman for Nebraska, and Mrs. Beck, State Auxiliary president for Idaho.

Mrs. Mosiman gave an inspiring talk on the importance of being Auxiliary members and the purposes of the Auxiliary. She spoke of women in history and major problems they had been confronted with, immigration in colonial days with its effect on living standards, the abolition movement, temperance, and the establishment of the 18th amendment.

"What can we do today as women through our Auxiliary? We must have the will to do, and help with our national health problems, let us be well informed in this regard, be readers of *Hygeia*, the health maga-

zine of the A.M.A., get others to read it and place it in centers where it will be read."

Too, there are many ways to help in the defense program:

1. By aiding physicians' families near camps, if we are near those camps.
2. Making studies of Pan-American relations.
3. Helping with the Nutrition Program by studying problems of high food prices, working out adequate diets for low income groups, and studying propaganda in food advertisements.
4. Studying the problem of poor health from the lack of good food.

Auxiliary members, Mrs. Mosiman felt, have a real duty to perform locally and nationally, if they will.

The Board Meeting continued after luncheon with reports from the following counties: Goodhue, Hennepin, Nicollet-Le Sueur, Mower, Ramsey, Red River Valley, St. Louis, Scott-Carver, Stearns-Benton, Upper Mississippi, Wabasha, Washington, West Central, Wright, Olmsted-Houston-Fillmore-Dodge, Rice.

Mrs. John J. Ryan, Saint Paul, entertained for Dr. and Mrs. Roscoe Mosiman, Seattle, Wash., at a dinner party, Thursday, October 16. Prominent local Auxiliary members and their husbands were guests.

COUNTY NEWS

Olmsted-Houston-Fillmore-Dodge

Mrs. M. J. Anderson, Rochester, Minn., president, has appointed the following chairmen for the year:

Mrs. T. B. Magath, legislation
Mrs. C. W. Rucker, public relations
Mrs. M. W. Binger, publicity
Mrs. J. E. Crewe, local health
Mrs. L. P. Howell, bulletin of the A.M.A. Auxiliary
Mrs. J. H. Tillisch, program
Mrs. L. M. Randall, telephone

St. Louis

St. Louis County medical women are busy not only in Auxiliary work, but in other varied activities, as the following will show. Mrs. W. N. Graves has had an active part in the Duluth branch of the Committee to Defend America; Mrs. P. G. Borman, Mrs. A. O. Swenson, Mrs. D. W. Wheeler, in organization of the Women's Institute; Mrs. A. E. Walker, Mrs. L. R. Gowan and Mrs. D. W. Wheeler in the Duluth Association for the Physically Handicapped; Mrs. Charles Goodman in the Talmud Torah Sisterhood; Mrs. Philip N. Bray, Mrs. M. F. Fellows in the College Woman's Club; Mrs. A. T. Laird in Y.W.C.A. Household Employment Project; Mrs. M. H. Tibbets in Community Fund Drive.

The first meeting of the Auxiliary for the season was held at the Duluth Woman's Club, October 14, at 1:00 p.m., with Mrs. P. S. Rudie, president, presiding.

The officers for the year include:

Mrs. D. W. Wheeler, president-elect
Mrs. A. J. Bianco, vice president
Mrs. G. A. Hedberg, treasurer
Mrs. F. T. Becker, recording secretary
Mrs. John Butter, corresponding secretary

Ramsey

Ramsey County Auxiliary had its first meeting of the year at the home of Mrs. A. F. Arnquist, 1184 Orange Avenue, Saint Paul. Mrs. A. W. Lilly, Hudson, Wisconsin, very ably spoke on the Red Cross. Dr. John Lepak, of the Ramsey County Medical Society, also spoke, and Mr. John Myhers, of the Saint Paul Civic Opera Association, sang. At the tea following, Mrs. E. M. Hammes and Mrs. John J. Ryan poured.

Hennepin

Women of Hennepin County Medical Auxiliary have had a very intensive entertainment program this fall for women in other groups. The International Medical Assembly, which met the middle of October in Minneapolis, meant much work for the Auxiliary members. At the style show and luncheon at Dayton's, 250 women attended; for the Tour of the Radiation Department at the University Hospital and luncheon at Coffman Memorial Union, there were 125 present; for the luncheon and local talent program at Interlachen Country Club, 236 made reservations.

Closely following this week of activities, came the Public Relations Meeting, Friday, November 7, which was held at the Medical Arts Lounge and Assembly rooms. Mrs. F. S. McKinney, president, presided, and Mrs. Harlow Hanson made arrangements for the meeting. Mrs. R. C. Logefiel was tea chairman, and Mrs. H. W. Quist, and Mrs. C. A. Undine were hostesses. Invitations included representatives of many clubs, and in all 200 attended.

An educational movie on the "Control of Cancer," from the U. S. Public Health Department, was shown and the Auxiliary octet favored the audience with some excellent selections. The highlight of the meeting was a very comprehensive talk by the popular Dr. W. A. O'Brien, on "Modern Public Health Achievements." He presented interesting facts on the advance of medicine in the use of drugs, such as the sulfonamides in infections, the progress in Public Health, i.e., in smallpox and tuberculosis control; however, Minnesota, because of the "anti" groups, is one of four states in the Union which does not have compulsory vaccination and, as a result, has more cases of smallpox and deaths than any place in the country. Preparation for surgery and postoperative care have become as important as the actual surgery. Regarding pregnancy, nutrition has become a most important factor in labor for the mother and later in its effect on the health of the child. He spoke of the advance in dentistry, presenting the fact that "dental neglect is more expensive than dentistry." Cancer is curable. The importance of proper nutrition cannot be over-emphasized, according to Dr. O'Brien. Medicine has advanced, and a presentation of these facts only more firmly substantiates this statement.

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A review of the literature on Biotin, prepared by our technical staff, is available in booklet form to those interested in nutritional research.

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OF GENERAL INTEREST

Dr. Russell E. Carlson of Stillwater was married September 13 to Marion H. Jurgenson.

* * *

Dr. George Penn of Mankato was elected president of the Immanuel Hospital staff at the annual staff dinner, December 18. Dr. R. G. Hassett was elected vice president, and Dr. F. W. Franchere of Lake Crystal, secretary.

* * *

Tribute was paid to Dr. F. W. Penhall of Morton, retiring president of the Renville County Medical Society, at the organization's November meeting at Olivia. Dr. Penhall has practiced medicine in Renville County for half a century.

* * *

Dr. Joseph Murphy is opening offices in Marshall for the practice of medicine. Dr. Murphy recently completed his internship at University Hospitals in Minneapolis. He was graduated from the University of Minnesota Medical School in June, 1940.

* * *

Dr. A. E. Sohmer was chosen president of the staff of St. Joseph Hospital in Mankato at the annual meeting, December 11. He succeeds Dr. M. I. Howard.

Other officers elected are: Dr. G. A. Dahl, vice president, and Dr. C. F. Wohlrahe, secretary.

* * *

The war forced upon us in December now makes

the needs of the Red Cross many times greater and more urgent even though the annual roll call of the American Red Cross has just been completed. The beginning of a campaign to raise the necessary funds was announced December 12 by the President.

* * *

Dr. Alex Blumstein announces the opening of offices at 1541 Medical Arts Building in Minneapolis for the practice of psychiatry and neurology. Dr. Blumstein, who was formerly at General Hospital, is instructor in the Division of Nervous and Mental Diseases at the University of Minnesota Medical School.

* * *

For the second time, Dr. Z. E. House is serving as "wartime" mayor of Cass Lake. He was elected mayor of Cass Lake in 1917, retiring from that office after the close of the war. Last month, just six days before United States was forced into World War II, he was again elected mayor of that city.

* * *

Dr. Frank C. Mann of Rochester, November 18, presented the first lecture of the Frank C. Mann Lectureship in applied physiology, supported by the Phi Beta Pi fraternity of Indiana University Medical School. His subject was "The Circulation of the Liver."

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Among representatives to the Scientific Exhibit of the American Medical Association appointed from the different sections of the Scientific Assembly are Drs. F. P. Moersch of Rochester, Nervous and Mental Diseases, and Dr. Hamilton Montgomery, Rochester, Dermatology and Syphilology.

* * *

Dr. O. K. Lindboe, pioneer physician of Dawson, was feted by relatives and friends recently on his ninetieth birthday.

Born in Norway, he came to America when he was sixteen years old. He was graduated from Rush Medical College in Chicago.

* * *

Dr. Charles H. Rogers of Minneapolis, dean of the College of Pharmacy at the University of Minnesota, is a member of the Committee on Constitution and By-Laws of the United States Pharmacopeial Convention, which will report when the convention reconvenes for its adjourned meeting, April 7, in Cleveland.

* * *

Orders of Dr. Homer H. Hedemark of Thief River Falls, captain, to report to active duty with the United States Army medical corps, have been revoked. Likewise, have the orders of Dr. Clive Roland Johnson of Rochester, first lieutenant, Dr. Arthur Neumaier of Glencoe, first lieutenant, and Dr. Eugene E. Ahern, Minneapolis, first lieutenant, been revoked.

* * *

Recently released from active duty with the United States Army were the following medical reserve officers:

Dr. William Ginsberg, Saint Paul, major; Dr. Carl Oliver Thompson of Hendrick, first lieutenant; Dr. John D. Van Valkenburg of Floodwood, first lieutenant. Dr. Milton Abramson of Minneapolis, captain.

* * *

Among speakers participating in the postgraduate lectures sponsored by the Iowa State Medical Society during November were: Dr. Harold F. Buchstein of Minneapolis, who spoke at Jefferson, November 13, on "Making a Neurological Examination"; and Dr. Arthur U. Desjardins of Rochester, who spoke at Boone, November 13, on "Therapeutic Value of X-Ray."

* * *

Dr. T. J. Bloedel has become associated in practice with Dr. Philip Anderson of Minneapolis, maintaining offices at 3657 Emerson Avenue North. For the past seven months Dr. Bloedel practiced in New Richland, going there to take over the practice of Dr. R. O. Spittler, who expected to be called for military service. Dr. Spittler, however, was released from active duty.

* * *

Authors of a book, "Communicable Disease Control," recently off the press, are Dr. Gaylord W. Anderson, head of the Department of Preventive Medicine and Public Health at the University of Minnesota Medical School, and Miss Margaret G. Arnstein, formerly associate professor in that department. Miss Arnstein is now district supervising nurse in the New York State Department of Health.

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MINNEAPOLIS

Nearly 400 persons—mainly physicians and members of the University of Minnesota staff—attended a reception given December 10 in Coffman Memorial Union, in honor of the Mayo family and Miss Helen Clape-sattle, author of "The Doctors Mayo."

In the receiving line were President and Mrs. Walter C. Coffey, members of the Mayo family, Miss Clape-sattle, Dean and Mrs. Malcolm Willey and Mrs. Margaret Harding, head of the University Press.

* * *

Saint Paul's new hospital for cancer patients was opened December 8 by the Sisters of the Servants of Relief for Incurable Cancer Among the Poor.

Known as Our Lady of Good Counsel Home, the hospital is located at 2076 St. Anthony Avenue. Men and women suffering from incurable cancer, who are without funds, will be cared for there without cost. The hospital will be maintained on charitable offerings.

The Dominican nuns have similar homes in New York, Philadelphia, Atlanta, Fall River, Mass., and Hawthorne, N. Y.

* * *

Dr. Richard M. Hewitt of Rochester has been named a member of the Committee on Information under the recently appointed Board of Procurement and Assignment Service. Other Minnesota persons, previously announced as members of committees, include Dr. Gaylord W. Anderson of the University of Minnesota, Committee on Public Health; and Dr. Ruth E. Boynton,

University of Minnesota, Committee on Women Physicians. Dr. Harold S. Diehl, dean of medical sciences at the University of Minnesota, is a member of the six-man board.

* * *

Among new fellows in the Mayo Foundation at Rochester are: Dr. William W. Engstrom of Minneapolis, a graduate of the University of Minnesota Medical School; Dr. Robert M. Fawcett of Starkweather, North Dakota, who interned at Ancker Hospital in Saint Paul from July 1940 to July 1941; Dr. Gordon M. Martin of Saint Paul; and Dr. Sydney J. Weisman of Minneapolis, a graduate of the University of Minnesota Medical School. Dr. Weisman did graduate work in the Department of Pathology at the University of Minnesota from July 1940 to October 1941.

* * *

A National Defense Book Campaign will start Monday, January 12, 1942, for the purpose of collecting books for the use of soldiers, sailors and marines. The campaign has set as its goal the collecting of ten million volumes. Books should be taken to libraries or other designated spots whence they will be sent to U.S.O. houses, Army day rooms, ships, naval bases, et cetera. It is suggested that the names of the donors be put in the volumes for the information of prospective readers. Headquarters of the Book Campaign are located at the Empire State Building, Room 1630, 350 Fifth Avenue, New York City.

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Medical reserve officers recently called to active duty include:

Dr. Clifford Hogan, Kensington, first lieutenant, to Corps Area Service Command Station Hospital, Fort Snelling.
Dr. Ralph Hertrich Larson, Tenney, first lieutenant, to Corps Area Service Command Station Hospital, Fort F. E. Warren, Wyoming.
Dr. Peter Alfred Leuther, Mankato, first lieutenant, Fort Leavenworth, Kansas.
Dr. Roger Weston Marks, Saint Paul, first lieutenant, Fort Leavenworth, Kansas.
Dr. Louis C. Mead, Minneapolis, major, to Cal-Aero Training Corporation, Grand Central Air Terminal, Glendale, California.
Dr. Columbus H. McCuiston, Jr., Rochester, first lieutenant, to Corps Area Service Command Station Hospital, Fort Snelling.
Dr. Alfred Charles Meyer, Rochester, first lieutenant, Corps Area Service Command Station Hospital, Fort Snelling.

* * *

When the thirty-eighth annual Congress of the Council on Medical Education and Hospitals of the American Medical Association, cooperating with the Federation of State Medical Boards of the United States, is held in Chicago, February 16 and 17, a Minnesota man will be among the speakers.

He is Dr. Harold S. Diehl, dean of medical science at the University of Minnesota, and a member of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians of the Office of Defense, Health and Welfare Services. Dr. Diehl's subject will be "Medical Education in the Preparedness Program."

* * *

Dr. Bernard Karleen of Jamestown, North Dakota, is located in Balaton, where he has taken over the Hennoff Clinic building.

Prior to coming to Balaton, Dr. Karleen was head of

medicine and surgery at the State Hospital at Jamestown. A graduate of the University of Minnesota Medical School in 1938, he served his internship at the City of Detroit Receiving Hospital in Detroit, Michigan, and was awarded a year's surgical fellowship at Alexander Blain Hospital in that city.

Mrs. Karleen, a graduate nurse, will assist her husband in his office.

* * *

Eight Rochester and five Duluth medical naval reserve officers have been ordered to active duty.

The Rochester men reported December 29 for duty at the new naval hospital at Corona, California. Reporting were Dr. W. McK. Craig, neurosurgeon; Dr. H. K. Gray, abdominal surgeon; Dr. A. M. Snell, physician; Dr. H. H. Williams, ear, nose and throat specialist; Dr. Harry M. Weber, radiologist; Dr. H. B. Macey, orthopedist; Dr. E. H. Cook, urologist, and Dr. A. H. Baggenstoss, pathologist.

Destination of the Duluth doctors was announced as "confidential." Those who reported are: Lieutenant Commanders D. W. Wheeler, P. S. Rudie, M. H. Tibbetts, L. R. Gowan and M. F. Fellows.

* * *

Dr. E. M. Jones of Saint Paul was elected first vice president of the Western Surgical Association, and Dr. Harry B. Zimmermann, also of Saint Paul, was re-elected recorder when that association held its annual meeting in Saint Paul last month. Dr. Zimmermann was in charge of arrangements for the session.

Other officers elected were: Dr. Walter D. Gatch

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of Indianapolis, president; Dr. E. Eric Larson, Los Angeles, second vice president; Dr. Arthur R. Metz of Chicago, secretary; and Dr. Verne Hunt of Los Angeles, treasurer.

The 1942 meeting will be in Memphis.

* * *

Dr. Ole M. Heiberg, who has been in private practice in Manhattan, Kansas, since 1938, joined the staff of the Worthington Clinic in Worthington, December 26.

A native of Twin Valley, Minnesota, Dr. Heiberg was graduated from the University of Minnesota Medical School. He was a teaching fellow at the University of Minnesota department of internal medicine, stationed at the Minneapolis General Hospital until 1938, when he went to Manhattan to practice.

At the Worthington Clinic Dr. Heiberg is succeeding Dr. Ira H. Wilson, who recently was called into the military service.

* * *

Dr. Howard F. Claydon, who has been practicing in Zumbrota since 1930, has become associated with his father, Dr. L. E. Claydon, in the Claydon Clinic at Red Wing.

The Clinic, founded by the late Dr. Donald R. Claydon, has been operated the past several months by Dr. L. E. Claydon, who took charge following the death of his son. Because he has found the duties too arduous, he has sought the aid of his son, Dr. Howard F. Claydon, brother of the founder.

Dr. Howard Claydon will continue to maintain of-

fices in Zumbrota, and will return there two days a week, Mondays and Fridays.

Dr. E. M. Baldigo, who has been associated with the Claydon Clinic for a number of years, will remain on the staff.

* * *

Dr. Herman E. Hilleboe of Saint Paul, chief of the medical unit of the state division of social welfare, reported January 1 to the United States Public Health Service in Washington to undertake public health work in connection with defense activities.

Dr. Edwin J. Simons of Swanville, formerly of Bemidji, has been named head of the medical unit on a part-time basis to replace Dr. Hilleboe. A graduate of the University of Minnesota medical school in 1924, Dr. Simons has practiced in Swanville since graduation with the exception of one year in public health work in clinical tuberculosis on the staff of the Minnesota State Sanatorium in 1926. He is also a graduate of Annapolis Naval Academy.

Dr. Hilleboe was commissioned as an assistant surgeon in the United States Public Health Service, June 16, 1939, and since that time has been assigned to the state of Minnesota on request of Governor Stassen. As chief of the Minnesota medical unit, he developed an integrated medical care program which embraces general medical care for assistance and relief recipients, the crippled children's program and supervision of county tuberculosis sanatoria and the state sanatorium at Walker.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

THE TOXEMIAS OF PREGNANCY. William J. Dieckmann, M.D. Associate Professor of Obstetrics and Gynecology, University of Chicago; Attending Obstetrician, the Chicago Lying-In Hospital and Dispensary; Attending Gynecologist, Albert Merrit Billings Memorial Hospital of University of Chicago; Associate Editor of American Journal of Obstetrics and Gynecology; Co-chairman of the Conference on Eclampsia, United States Department of Labor, Children's Bureau, 1941. 521 pages. Illus. Price, \$7.50, cloth. St. Louis: C. V. Mosby Co., 1941.

IMMUNOLOGY. Noble Pierce Sherwood, Ph.D., M.D., F.A.C.P. Professor of Bacteriology, University of Kansas, and Pathologist to the Lawrence Memorial Hospital, Lawrence, Kansas. 639 pages. Illus. Price, \$6.50, cloth. St. Louis: C. V. Mosby Co., 1941.

THE MARCH OF MEDICINE. New York Academy of Medicine Lectures to the Laity, 1941. Various authors. 154 pages. Illus. Price, \$2.00, cloth. New York: Columbia University Press, 1941.

TREATMENT OF THE PATIENT PAST FIFTY. Ernest P. Boas, M.D. Associate Physician Mt. Sinai Hospital, New York City; Chairman, Committee on Chronic Illness, Welfare Council New York City; Assistant Clinical Professor of Medicine, Columbia University. 324 pages. Illus. Price, \$4.00, cloth. Chicago: Year Book Publishers, Inc., 1941.

RADIATIONS AND WAVES—Sources of Our Life. Georges Lakhovsky. Professeur d'Oscillo-Thérapie de l'Institut Physique Biologique de Paris. 139 pages. Illus. Price, \$2.50, paper cover. New York: Emile L. Cabella, 1941.

SYNOPSIS OF ALLERGY. Harry L. Alexander, A.B., M.D., Professor of Clinical Medicine, Washington University School of Medicine, St. Louis; Editor of the Journal of Allergy. 246 pages. Illus. Price, \$3.00, flexible binding. St. Louis: C. V. Mosby Co., 1941.

SYNOPSIS OF GENITOURINARY DISEASES. Austin I. Dodson, M.D., F.A.C.S. Professor of Genitourinary Surgery, Medical College of Virginia; Genitourinary Surgeon to the Hospital Division, Medical College of Virginia; Genitourinary Surgeon to Crippled Children's Hospital; Urologist to St. Elizabeth's Hospital; Urologist to St. Luke's Hospital and McGuire Clinic. 302 pages. Illus. Price, \$3.50, flexible binding. St. Louis: C. V. Mosby Co., 1941.

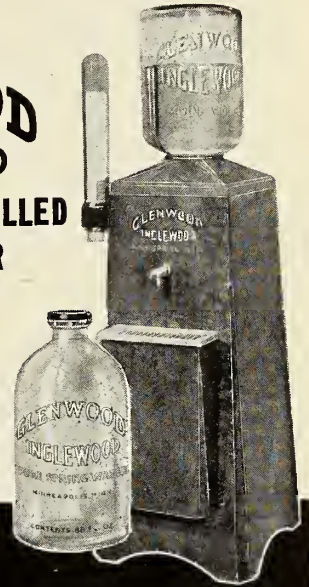
THE DOCTORS MAYO. Helen B. Clapesattle. 822 pages. Illus. Price \$3.75. Minneapolis: University of Minnesota Press, 1941.

There are two stories to be told: the lives of the men themselves and the growth and development of the great institution they founded and then endowed to ensure the continuance of the benefits conferred upon mankind. The careers of the three Mayos and the unfolding of the steps by which their great work was

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accomplished are of necessity closely interwoven, and in this volume are set forth by the biographer with a wealth of detail and a painstaking gathering of information from innumerable sources, reminiscent of the massive story of Lincoln by Sandburg.

The father, William W. Mayo, was of English birth and descent, a member of the same social class in England as the Pilgrim Fathers who settled New England, with whom he shared the important characteristics of courage, integrity, and tenacity of purpose. Coming to the United States in 1845, at the age of twenty-five, he took up the study of medicine partly under a preceptor, but also in one of the small proprietary medical schools with which the Middle West was afflicted at that time. In 1851 he married, his wife having been born in Michigan. Settling in Lafayette, Indiana, only to be driven away in a few years by the intermittent fever from which few escaped in those days, he made his way to Minnesota, reaching Saint Paul in the summer of 1854, where Mrs. Mayo soon joined him. After a stay in Le Sueur, where Will Mayo was born in 1861, he finally came to Rochester in 1864; here Charlie Mayo was born the next year.

Dr. Mayo soon became the leading medical man in southeastern Minnesota, gaining a high reputation as a surgeon particularly, and called in to operate by his fellow practitioners in cases they feared to tackle themselves. As the relation of infection to germs became

recognized and the methods of antisepsis and afterwards of asepsis were established, surgery began to invade the cavities of the body, and Dr. Mayo was among the first to do abdominal surgery successfully in southern Minnesota.

Thus when Dr. Will, in 1883, and Dr. Charlie, in 1885, came to Rochester to begin the practice of medicine, they joined their father in work well established, having the inestimable advantage of beginning surgical work at once as his assistants, enabling them to stand beside the table during operations instead of looking on from benches at a distance. Soon they began to do operations themselves serving as assistants to one another, meantime getting practical experience in general medicine by answering calls and taking care of office practice as far as the patients would permit.

Although there was nearly four years difference in their ages the two boys were from the start inseparable companions, and just as they shared their plays in boyhood they afterward shared their work, their incomes, and the honors that came to them; and the homes they built were side by side and communicating; a most unusual partnership, recognized by the public, who went to Rochester to see "the Mayos," not Dr. Will or Dr. Charlie.

Despite the fact that patients soon came to them from an ever widening circle, they took proper steps to make themselves known. In 1888, this reviewer as one



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of a committee to welcome to Saint Paul those coming to a meeting of the Minnesota State Medical Society, remembers shaking hands with two very young men as they got off the train from Rochester; and afterwards, as editor of the local medical journal he published some of their earliest writings. As they joined one medical society after another they were constant attendants at meetings, and their modest yet intelligent and vigorous discussions of papers read attracted attention from the start. Each year at least one of them visited a surgical center and brought back new ideas in technique. The list of the surgeons whose methods they studied includes the names of all those who became famous at the end of the last century. Later, when the visits were extended to Europe, they met and watched the work of the great surgeons of Great Britain and the Continent.

Once started rolling, the snowball of reputation and practice grew rapidly. They took larger offices and added partners to take care of the large business; also a man to handle the finances. At about this time hackmen meeting trains at Rochester greeted the arriving passengers "Take you to the Cook Hotel and to Dr. Mayo's office." It was not much later that Dr. Will said in despair to a Saint Paul friend that they had tied a millstone about their necks and did not see how they were going to carry it. As early as 1904 their anesthetist reported 11,000 administrations. The Mayo Clinic, organized in 1909, moved into its own building in 1914 and the work was divided into numerous departments, each with its own head. The present building dates from 1928.

It is a common observation that men who have achieved greatness in one line of activity would have been equally famous in another pursuit. If turned to commerce the genius that built the Mayo Clinic might have equalled the achievement of A. T. Stewart or of Marshall Field. In the army it might have produced a Napoleon, in the navy a Nelson. One of the notable characteristics of this genius is to make a wise selection of lieutenants. The Mayos owe much of their success to having joined to themselves such men as Graham, Plummer, Wilson, Judd, Rosenau, Beckman, Henderson, Adson, some of whom still continue the work.

Although the Clinic's payroll was a long one, where all from the heads down were on salaries, the surplus soon ran into millions, and the Mayos made preparations to carry out a long cherished plan, to return the money to those from whom it came in the form of opportunities for advanced medical education and for research. With some difficulty a junction was made with the State University Medical School and the Mayo Foundation was established, enabling students of medicine to profit by the large number of patients who consult the Clinic. A large sum of money in the hands of trustees assures the perpetuation of its benefits.

Thus the work of the Mayos lives after them. The old doctor died in 1911, the sons in 1939; brothers united all through their lives they were barely separated by their deaths, two months apart.

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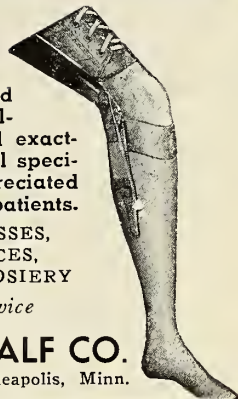
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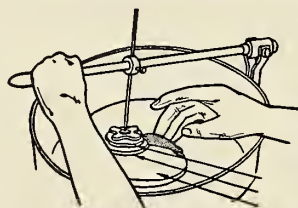
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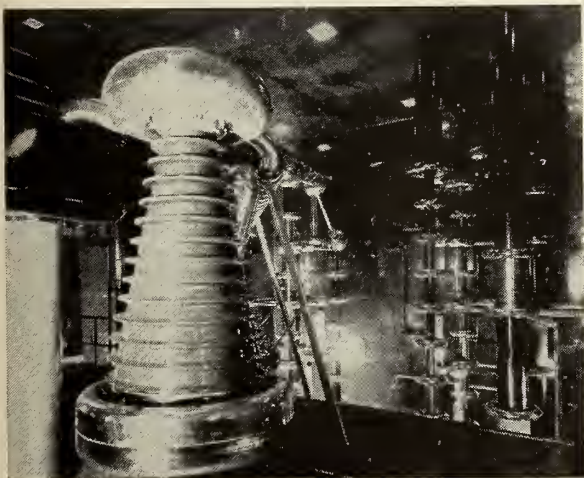
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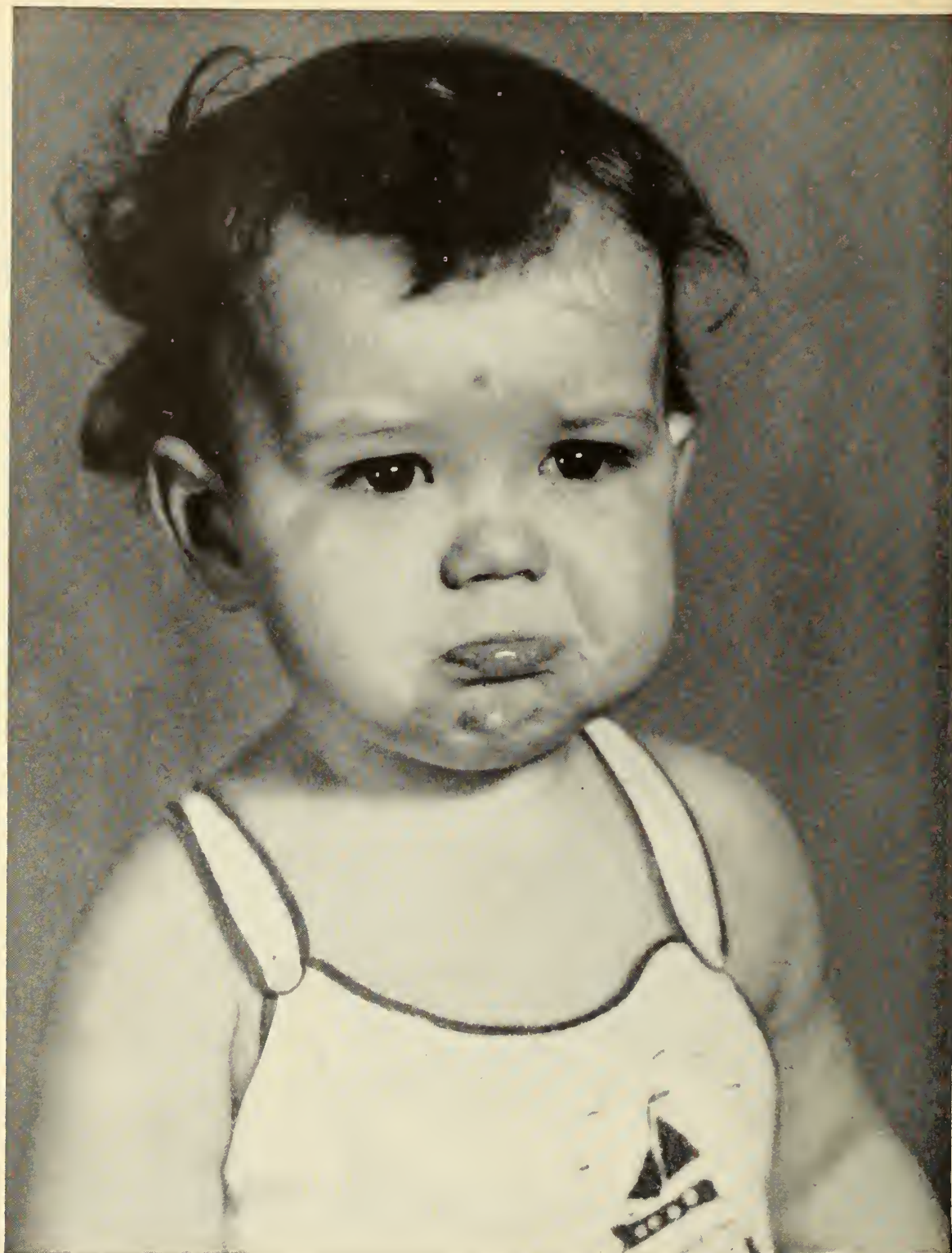
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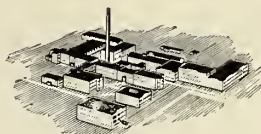
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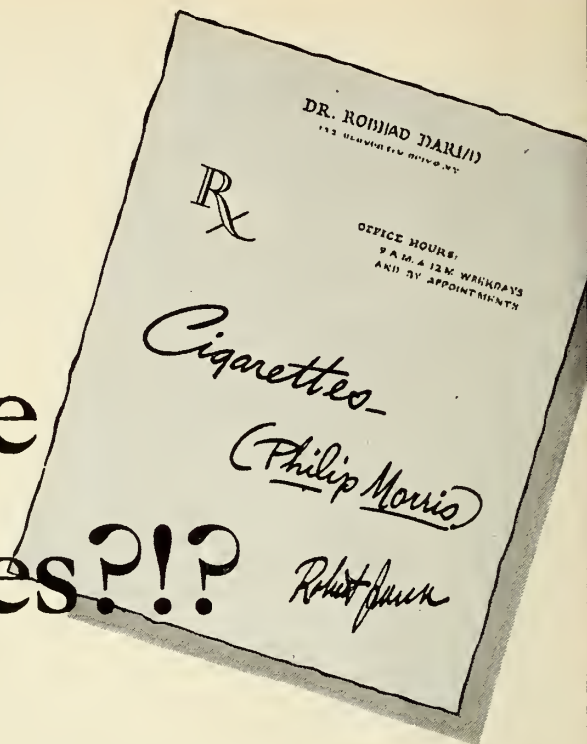
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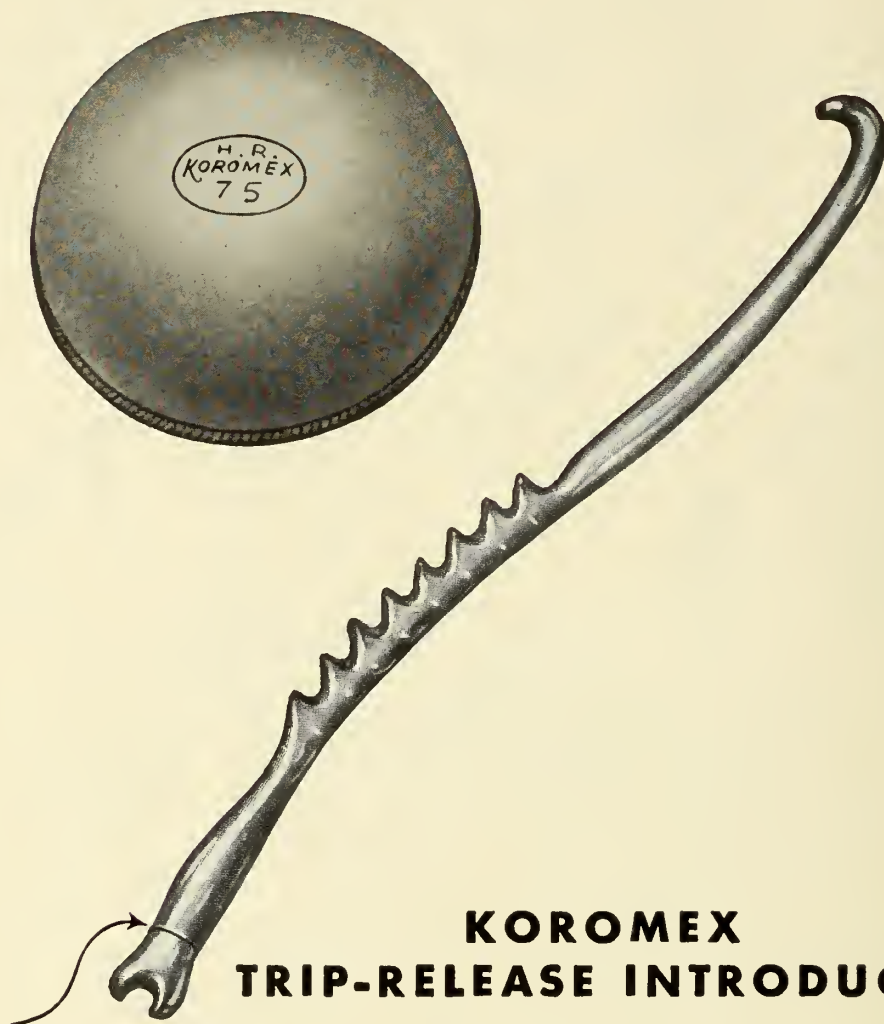
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*Matsuzawa, D; Boyd, L. J.
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MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 25

February, 1942

No. 2

PRESENT STATUS OF SURGERY OF THE ACCESSORY NASAL SINUSES

CHARLES E. CONNOR, M.D.

Saint Paul, Minnesota

THE modern story of the nasal accessory sinuses begins with the profound anatomical researches of the Viennese and German schools shortly after the middle of the last century. Aided by limitless post-mortem material and a flare for research, men such as Zuckerkandl and Hajek of Vienna, Grünwald of Munich, and Killian of Baden covered the entire field so thoroughly that little has since been added to their work. These studies, concerned solely with gross anatomy, laid the foundation for all later surgical procedure but could not be fully utilized at the time because of technical difficulties; for many years, therefore, the only operations attempted on the accessory sinuses were external, done under general anesthesia, and without any special illumination. The frontal sinus was most frequently opened, occasionally the antrum. Lack of adequate cavity illumination and hemostasis made such procedures difficult and rendered the surgery of the sinuses static for a long time.

So matters stood till the discovery of cocaine in 1885 and adrenalin in 1910; this combination produced such anesthesia and ischemia that the field of intranasal surgery seemed limitless; patients were willing to have almost anything done provided only that it left no visible scar. So was ushered in the so-called "Golden Age" of rhinology when almost anything "went," provided no scar was left.

It ultimately became evident that a restudy of the problem was indicated, not so much in the fields of anatomy or surgical technic, for these were already on a sound basis, but in the fields of physiology and pathology; accordingly much research, initiated in this country and copied abroad,

has been carried on in various university centers for the past decade with most illuminating results. Our understanding of nasal function, the filtering, warming and moistening of the air, the function of smell, has been amplified by the newer knowledge of the function of the mucous blanket, of the cilia, and of epithelial and glandular tissue.

Much of our older therapy with sprays, swabs, and irrigations was revealed as not only not beneficial but definitely harmful, in that it interfered with the mucous blanket and with ciliary activity. We realize now that the delicate nasal membrane will not tolerate strong medication, that the mucous blanket is impervious to many of our favorite remedies, including the old reliable nasal oils, that any germicidal agent strong enough to be effective will work irreparable harm to the mucosa, that irrigations are bad because they wash away the protective mucus, that strong vasoconstrictors, if much used, produce a flabby, thickened membrane productive of permanent nasal obstruction. We have a clearer understanding of the vast amount of work the normal nasal mucosa can accomplish and of the necessity of preserving it intact and interfering as little as possible with its function.

The surgical treatment of sinusitis is unique in that healing of suppuration in a bony-walled cavity must be achieved, with rare exception without ablation of the cavity and with preservation of normal function and cosmetics. Abscesses in soft tissue can be incised and drained; in sinus suppuration this technic is not available and cosmetic considerations are important.

Preservation of normal function means the preservation of the normal sweeping action of the mucous blanket and cilia of the nose and acces-

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sory sinuses, the most important single factor in the health of these structures. Obviously this means that healing must be accomplished with as little disturbance as possible of the normal mucosa



Fig. 1. Extreme variation in development of frontal and maxillary sinuses. (From J. Parsons Schaeffer.)

of these cavities; this membrane, given a chance by adequate ventilation and drainage, has enormous recuperative power. In the exceptional case, requiring removal of the lining mucosa, the cavity is relined with scar tissue which may be and often is covered with a normal ciliated columnar epithelium quite capable of carrying on the ordinary cleansing functions of cilia and mucous blanket.

Küster, half a century ago, formulated three basic principles of treatment of suppuration in a rigid-walled cavity. The cavity must be opened widely enough to permit adequate inspection, all diseased tissue must be removed, and ventilation and drainage must be secured by a permanent opening, principles just as fundamental today as when formulated. Endless variation in the anatomy and relations of the sinuses determines in part success or failure in the application of these principles and in the preservation of normal function and cosmetics, factors touched on briefly when the surgical treatment of individual sinuses is considered.

The maxillary antrum, of all the sinuses, is the most frequently involved in disease processes and providentially offers the best opportunity to apply Küster's postulates. This is so, largely because the antrum is usually a single cavity,

easily accessible, and without intimate vital relationships which would make its surgical treatment hazardous. The floor of the antrum may be level with, above, or below the floor of the nose. The latter situation usually prevails and makes for some retention of secretion after the most thorough antrotomy. The infraorbital nerve may lie exposed in the roof of the antrum and be injured by the curette; the bicuspid and molar teeth and the nasolacrimal canal in the nasoantral wall may also be injured by too vigorous curettage. The great palatine artery, a branch of the third division of the internal maxillary, may be injured if antrotomy is carried too far posteriorly; bleeding from this vessel is difficult to control (Fig. 1).

Antrum suppuration was first treated by irrigation or insufflation of medicinal agents through the fistula made by extraction of a molar or bicuspid tooth. This method, fulfilling none of the fundamental requirements of treatment, was doomed to failure and soon abandoned. The next step was the removal of part or all of the canine fossa, a procedure technically easy and limited only by the location of the infraorbital nerve above, the position and length of the upper teeth, and the size of the cavity; inspection and removal of diseased tissue was easily accomplished. Ventilation and drainage was at first attempted by making an oral-antral fistula; this was neither easy to do nor always effective. A large opening under the inferior turbinate with closure of the incision over the canine fossa was much more satisfactory and fulfilled the requirement for permanent drainage; this, the Caldwell-Luc operation, has given good results for many years. The principal objection to it is the severity of the reaction and time required for healing. In recent years the tendency has been to reserve it for certain types of cases, marked polyposis, foreign body, malignancy, or cases failing to respond to the simpler operation of antrotomy, the so-called "window-resection."

Antrotomy has been widely used in recent years and has proved effective in simple uncomplicated antral disease. Reports range as high as 85 per cent of successes in properly selected cases. It is technically much easier to do, is followed by very little, if any, reaction, and healing time is shortened. It does not permit as effective application of Küster's postulates as does the Caldwell-Luc. A large antrotomy will, however, permit

fairly satisfactory inspection of the cavity with the antroscope or small mirrors, diseased tissue can be removed with reasonable certainty, using angled curettes, ventilation and drainage is just as satisfactory as with the more radical procedure. The mucosa may not return to normal for several months but a surprising amount of hyperplasia and beginning polyposis will eventually subside. It is the procedure of choice in uncomplicated cases of antrum suppuration. The one essential to success is to make the antrotomy as large as possible.

Operations on the antrum are best done under local anesthesia induced by injection of the sphenopalatine ganglion, intranasal nerve block with cocaine, and local infiltration with novocaine; they may also be done under general anesthesia but bleeding is apt to be troublesome.

The frontal sinus illustrates very well the importance of anatomical factors in treating suppuration in rigid-walled cavities and the truth that when adequate exposure, cleansing, and drainage are secured the results are good. When these essentials cannot be secured the result will probably be poor.

The frontal sinus may vary from a single small cell barely entering the frontal plate to a huge multiloculated cavity, extending from the external angle of one orbit to that of the other, and from the supraorbital margin to the hair line or even further; the nasofrontal duct may be a large straight canal emptying directly into the nose or it may be a narrow tortuous tube emptying indirectly into the nose. The floor of the sinus may contain no cells or it may be completely pneumatized back to the apex of the orbit, bringing the cavity into relation with the optic nerve and muscle cone (Fig. 2).

Problems peculiar to the frontal sinus complicate its treatment. Cosmetic considerations are important; the removal of the supraorbital margin or frontal plate produces, in large sinuses, a very evident and objectionable deformity. Certain cases would be best treated by obliteration of the cavity did not the resulting deformity forbid.

Osteomyelitis of the frontal bone, due to infection of the blood spaces in its diploë, is a serious complication possible in any procedure which attacks the frontal plate and invades these structures. Not infrequently resection of the entire frontal bone is necessary to check it.

A third problem, one of the most difficult of

all, is the maintenance of ventilation and drainage through the nasofrontal duct. A canal which has been enlarged to a diameter of a centimeter may close down in the course of a few weeks till it is

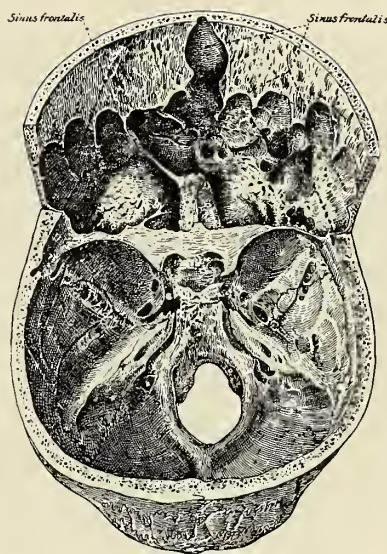


Fig. 2. Very large frontal sinus. (From J. Parsons Schaeffer.)

no longer functioning. Many methods to keep it patent have been tried, such as the use of skin and mucous membrane flaps, silver tubes, or radium. None of these has proved uniformly successful and the final answer to this problem has not been found.

The first approach to the frontal sinus was an opening in the anterior plate, either a small trephine or an extensive resection of the entire structure. When the sinus was limited to the frontal portion of the bone, inspection and removal of diseased tissue was easily accomplished. Maintenance of adequate drainage and ventilation, not so easily secured because the duct was not accessible to treatment, depended largely on its anatomy. Small sinuses could be obliterated by healing from the bottom.

A sinus limited to the frontal part of the frontal bone is not the usual situation; more frequently ethmoidal cells pneumatize the floor of the sinus to a variable degree. There may be only a few small, easily accessible cells or there may be many large cells, pneumatizing the floor of the sinus extensively over the orbit. In the latter case adequate treatment is impossible and the result of direct frontal approach unsatisfactory because of its inability to reach ethmoidal cells in the floor of the sinus and to control the nasofrontal duct.

The next development was the resection of the floor of the sinus, the approach being made through an incision in the eyebrow. This could be used for large or small sinuses, with or without

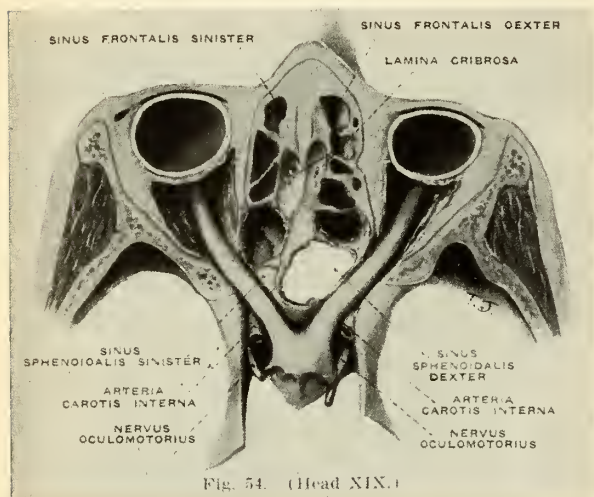


Fig. 54. (Head XIX.)

Fig. 3. Relation of optic nerve to accessory sinuses. (From J. Parsons Schaeffer.)

extensive ethmoidal development, and rendered the ethmoidal cells and nasofrontal duct much more accessible to treatment. As originally devised, the technic called for a bridge of bone above the supraorbital margin to maintain normal contour, especially in large sinuses.

This operation was hailed as the final answer to suppurative disease of the frontal sinus. But difficulties soon appeared. The bridge was technically difficult to make and retention of secretion often occurred behind it, causing recurrence of symptoms. Ethmoidal cells often proved difficult of access and closure of the nasofrontal duct often marred an otherwise satisfactory result. Osteomyelitis of the frontal bone continued to occur.

Occasionally, in small sinuses, the operation could be performed without making the bridge. This simplified the procedure, allowed satisfactory treatment of both frontal and ethmoidal portions, and was not cosmetically objectionable.

The present trend in the surgical treatment of the frontal sinus is to approach it through resection of the thin portion of the floor, avoiding any trauma to the frontal plate with its attendant dangers of osteomyelitis and cosmetic defects. Such an approach is technically easy, permits satisfactory inspection, cleansing, ventilation and

drainage, and secures as adequate treatment of the ethmoidal cells and nasofrontal duct as any technic we possess. The removal of the frontal plate is reserved for cases in which it is diseased or in which the posterior wall of the sinus must be inspected, e.g., suspected intracranial complication, fracture, malignancy, or those which have failed to respond to previous surgical treatment.

Acute suppurative frontal sinusitis rarely requires surgical treatment. When indicated, usually in cases of acute retention with severe pain or orbital involvement, approach should be made through the floor of the sinus, making an opening large enough to secure drainage from both frontal and ethmoidal portions. General anesthesia is desirable in order to avoid infiltrating an infected field. In such situations drainage is the only consideration, not accurate exenteration of all cells. Surgical procedures on the frontal plate are to be avoided in the presence of acute infection on account of the danger of osteomyelitis. Only definite indications of intracranial complication, such as meningitis or brain abscess, would warrant such measures. Any intranasal operation, such as turbinate resection or ethmoidal exenteration, is strictly taboo in the presence of acute infection.

Such operations, however, have a definite place in the treatment of chronic suppuration of the frontal sinus. They do not, of course, permit the adequate application of Küster's postulates. Inspection of the sinus and removal of diseased tissue from it is not possible; the only thing that can be secured is better ventilation and drainage. Fortunately, these measures control most of the cases of chronic suppuration in the frontal sinus; if they fail, recourse must be had to the external approach above described.

Acute infection calls for general anesthesia in operations on the frontal sinus. In chronic infection, the type usually demanding operation, local anesthesia is the choice because the hemostasis and enlarged field due to shrinking of vascular tissue (turbinates and membrane) define the landmarks and so permit more accurate and safer work. Intranasal nerve block with cocaine, superficial infiltration of soft tissues and deep orbital injection with novocaine produce most satisfactory anesthesia.

The ethmoidal sinus offers more difficulty in the application of the fundamental principles of treatment than does any other, due largely to its

peculiar honeycomb structure and endless and bizarre variation in development. The cells themselves are not directly visible by any method of examination; all that can be seen directly are the regions in the nose into which the various groups open, where their ostia may occasionally be seen with the nasopharyngoscope. The cells may invade the roof of the orbit, overlying that cavity, underlying the anterior fossa, and causing symptoms identical with those of a frontal sinus infection. They may invade the posterior portion of the antrum, giving rise to a so-called double antrum, or wander out into the middle turbinate; they may invade the body of the sphenoid bone, lying above or at the side of the sphenoidal sinus and so acquiring relationship with the optic nerves and commissure. They may lie behind, above, or in front of the pterygomaxillary fossa and its contained sphenopalatine ganglion, so that inflammatory reaction within these cells may cause referred pain anywhere in the field of the fifth nerve; they may be in direct contact with vital structures such as the cribriform plate. The use of x-ray and contrast media occasionally serves to warn us of unusual variations and often gives us a clue as to the best method of surgical attack.

No serious efforts were made to approach the ethmoid surgically as long as general anesthesia alone was available because the free bleeding so induced obscured all landmarks and made any such attempt, either intranasal or external, dangerous. And so it remains today. This one fact explains the universal practice of doing ethmoidal operations, either by intranasal or external route, under local anesthesia; only so can a bloodless field and clear delimitation of landmarks be secured. These, together with brilliant illumination, are the *sine qua non* of ethmoid surgery. True, one occasionally enters the ethmoid using general anesthesia, usually in cases of acute infection with retention and orbital involvement, but accurate exenteration is not attempted, merely drainage. Mosher, professor emeritus of rhinology at Harvard, author, some thirty years ago, of much brilliant original work on the ethmoid, has remarked that ethmoidal surgery worthy of the name always has been dangerous and always will be dangerous. A little reflection on the possible relations of this sinus makes the statement self-explanatory.

Ethmoidal surgery under local anesthesia dates from the discovery of cocaine. The approach

may be either intranasal, or external through the eyebrow and about the inner canthus. If the cells, as seen in x-ray, appear accessible by the intranasal route, this method may be

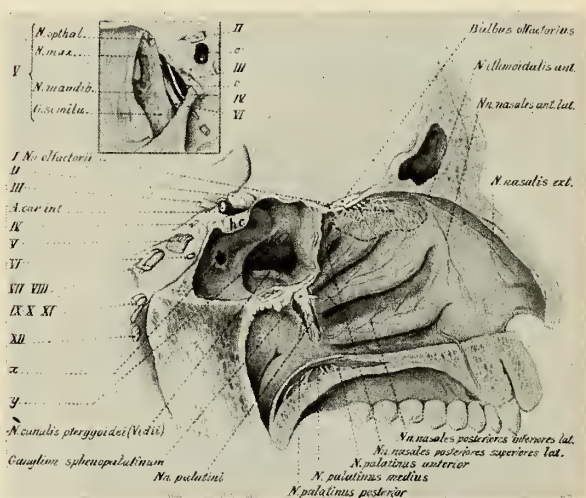


Fig. 4. Some relations of the sphenoidal sinuses. (From J. Parsons Schaeffer.)

tried. Anesthesia by intranasal nerve-block is very satisfactory; there is no shock or serious reaction associated with the procedure and healing is comparatively rapid. If due regard is had for the vital relationships above described, no accidents should occur. The middle turbinate may be removed after the operation or left intact; many prefer the latter, feeling that sacrifice of vascular tissue is to be avoided if at all possible.

If x-ray reveals cells inaccessible by intranasal approach, the external route about the inner canthus may be used. This also is done under local anesthesia, secured by superficial soft tissue and deep orbital injection of novocaine, and intranasal nerve-block. Such anesthesia is quite satisfactory; the ischemia so produced may be increased, if necessary, by ligation of the ethmoidal arteries. The field should be dry with maximum visibility and accessibility, permitting the examination and exenteration of the sinus cell by cell. Such technic gives the best chance of reaching difficult cells, is safer than the intranasal approach, and results in a scarcely visible scar.

The results of ethmoidal surgery depend on the thoroughness with which the cells are exenterated and this depends, in part, on their accessibility. If they are so situated that Küster's postulates may be attained by one technic or another, the

results will be good, and definite improvement in nasal occlusion, discharge, and headache will be secured. If the cells are reached only with great difficulty and exenteration is incomplete, results will be disappointing.

The sphenoid sinus, lying immediately behind and in close relation with the ethmoidal sinus, may be considered a prolongation backward of that sinus and, from the surgical point of view, a part of it. What has been said, in connection with the ethmoid, about the effect of anatomical characteristics and relationships upon surgical treatment applies with equal or even more force to the sphenoid. Its variations may be just as extreme and bizarre, its relationships just as vital, its surgical approach just as difficult as in the case of the ethmoid. Indeed, some of its recesses and prolongations are completely invisible and inaccessible by any means of approach.

The sinus varies greatly. It may be one small shallow cell, lying entirely on its own side of the sagittal plane, or it may be a huge, multiloculated cavity crossing the midline and giving symptoms on the opposite side of the head. It may enter the perpendicular and orbital plates of the palate bone, approaching the optic foramen and nerve. It may invade the greater or lesser wings of the sphenoid bone, assuming close relations to the superior orbital fissure and its contained structures, especially the superior and inferior divisions of the oculomotor nerve, the trochlear nerve, the lacrimal, frontal, and nasociliary divisions of the ophthalmic nerve, and the abducens. It may approach the foramen rotundum and the contained maxillary nerve or the foramen ovale and mandibular nerve. The sinus is in apposition posteriorly, in at least 50 per cent of the cases, with the optic nerves and commissure; if it is extensively developed posteriorly these structures may lie in the roof of one or both sphenoids. The clinoid processes may be pneumatized with the close approximation of the sphenoidal cavity to the contents of the sella. Dehiscences in the lateral wall of the sphenoid may expose the cavernous sinus and its contents directly to the sphenoidal mucosa and demand great caution in any attempt to remove diseased tissue from the cavity.

The sphenoid, lying deep in the nose, is not easily exposed to view, and part or all of the middle turbinate must be sacrificed to gain access to it. Treatment of suppuration within it involves taking down the anterior wall, partly membrane

and partly bone, or, in stubborn cases, the resection of the bony floor, a structure which may be quite thick and difficult of removal. The principle difficulties in treatment are caused by inaccessible ramifications, such as the pterygoid recess, and by the marked tendency to close of any operative opening in the anterior wall. These openings must be made as large as possible, as in antrotomy, in order to be permanent. Extreme care must be used in removing diseased tissue from its interior. It is evident that, while the problem of cosmetics does not here demand consideration, difficulties, at times almost insurmountable, are encountered in obtaining adequate inspection, in removal of diseased tissue, and in maintaining adequate drainage. When a large enough opening is secured in the anterior wall of the cavity, disease processes within usually subside quite satisfactorily. Limitations upon the operative field and procedures, so characteristic of sinus surgery, are well illustrated.

The discovery, in recent years, of nasal allergy has thrown much light on diseases of the accessory sinuses and has explained many of our failures in the past. It is estimated that about 25 per cent of the patients in ordinary rhinologic practice have in them some element of allergy, a fact we are just beginning to appreciate.

For years nasal allergy paraded under a long list of pseudonyms, hyperesthetic rhinitis, spasmodic rhinorrhea, rhinitis nervosa. We recognize them today as allergic rhinitis. One of the most frequent and baffling types of case in years gone by has been that of nasal polyposis, constantly recurring despite repeated operation. Today we realize that its cure depends, not on surgery, but on the discovery of the offending allergens. True, polypi may result from nasal infection, but such polypi are much more easily controlled by operation and have much less tendency to recur when the infection has been eradicated.

Allergy, of course, does not explain all nasal disease. Acute and chronic infection still take heavy toll of the accessory sinuses and are still amenable, in most cases, to surgical treatment. But we now realize that an uncontrolled allergy will probably vitiate surgical treatment of the sinuses, treatment which should not be undertaken till the allergic factors have been eradicated so far as possible. Naturally, one would not hesitate to initiate surgical treatment in the allergic pa-

tient, in cases of acute infection with retention, orbital abscess, or osteomyelitis. Minor procedures, such as removal of obstructing polypi or resection of deflected obstructing septæ, may also be properly done with good result in allergic cases. Our knowledge of allergy has greatly clarified surgical indications but it has not rendered sinus surgery obsolete.

I have attempted to present very briefly some of the aspects of sinus surgery which are peculiar to it and which explain, in part, some of the failures; I have pointed out the difficulties of satisfying the fundamental requirements of treatment of suppuration in rigid-walled cavities, e.g., adequate inspection, removal of diseased tissue, and establishment of permanent drainage; I have mentioned the bearing which anatomical variations have on the problem, the proximity of vital

structures, the limited field, the difficulties of exposure, and the necessity of frequently solving these problems while paying strict attention to cosmetic considerations.

I believe that the work of the past decade, particularly in physiology, is placing sinus surgery on surer and higher ground and that expectation of further advance is not unreasonable. As we assimilate into the experience of the past some of our newer knowledge of physiology, as the rôle of nasal allergy becomes clearer, as some of the newer surgical technics come into more general use, it should be possible to formulate clearer and more definite operative indications, and to use technical procedures promising a degree of success justifying the measure advocated. This is the hope and expectation of everyone interested in this field.

MINNESOTA'S EXPERIENCE WITH HUMAN ENCEPHALITIS CAUSED BY THE EQUINE TYPE OF VIRUS IN 1938

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EPIZOOTICS of equine encephalomyelitis have been observed for over seventy years but an etiologic agent was not definitely established until Meyer, Haring and Howitt²⁴ isolated a filterable virus during a California epizootic in 1930. In 1933, TenBroeck and Merrill,³¹ and Giltner and Shahan¹³ isolated a somewhat similar virus during an epizootic in four eastern states. The virus differed immunologically from the viruses which had been isolated in the western areas and the terms eastern and western strains of equine encephalomyelitis virus were introduced. The eastern strain produced a much more fatal type of disease in horses. It has been a general belief that the eastern strain is limited to the region east of the Appalachian Mountains and the western strain to the regions west of these mountains but recently the eastern strain was isolated from the brain of a horse in a Texas epizootic.²⁷

The possibility of human disease being caused by the equine type of virus was first suggested by Meyer²³ in 1932 when he presented three cases

of human encephalitis with a history of close association with sick horses prior to the onset of encephalitis. The first laboratory evidence supporting this suggestion was obtained in connection with a small epidemic of encephalitis occurring in the late summer of 1937 in an area of Minnesota where equine encephalomyelitis was prevalent.⁷ Six cases were reported, two had a fatal outcome, autopsy was done in one case and microscopic evidence of encephalitis was found. Blood was obtained from three of the survivors in January, 1938, and neutralization tests were run by Dr. Carl TenBroeck of the Rockefeller Institute. The serum of the patient most severely ill showed neutralization of the western equine strain. During the summer of 1938 epidemics occurred in various parts of the country and the etiology of the human cases was definitely established by the isolation of the eastern and western strains of virus. In August, 1938, cases of an unusually fatal type of encephalitis appeared in Massachusetts. The first report of the isolation of an equine virus from a human case was that of Fothergill, Dingle, Farber, and Connerly⁹ who isolated the eastern strain of virus from the brain of a child dying in this outbreak. Webster

From the Minnesota Department of Health, Division of Preventable Diseases and the Division of Mental and Nervous Diseases, University of Minnesota Medical School. Read before the Minnesota Society of Neurology and Psychiatry, Sept. 9, 1941.

and Wright³⁵ confirmed the isolation of virus from this case and succeeded in isolating virus from four additional cases. At this time cases were also occurring in California and from the brain of one of these Howitt¹⁹ isolated the western strain of virus. Later she reported the isolation of the western strain of virus from the blood serum of another case. In addition she has reported thirty-two cases (chiefly 1937 and 1938 cases) with sera neutralizing the western strain of virus.²⁰ Breslich, Rowe, and Lehman² in a clinical and pathological report of twenty-three cases seen in the North Dakota epidemic during the summer of 1938, state that neutralization tests were run by Dr. Charles Armstrong with six sera; four neutralized the western strain of virus and one the St. Louis virus. Gareau¹² reported a clinical study of twenty-nine cases occurring in southern Saskatchewan. Fulton¹¹ demonstrated neutralization of the western virus by the serum of one of these cases. In 1939 he received a brain specimen from a patient dying in this same area; from this specimen he isolated the western strain of virus. In Minnesota during 1938 the sera of fourteen cases neutralized the western virus.

From 1938 to 1940 few cases appear to have been recognized. Recently, two studies of 1940 outbreaks of acute encephalitis have been reported which emphasize the close association of the disease caused by the western strain of equine virus and the St. Louis virus. Phillips, Cox, and Fountain²⁵ report the study of an outbreak of encephalitis occurring in northern Colorado during the summer and fall of 1940 among humans and horses. Neutralization tests were run with sera from fourteen human cases; the sera of seven showed protection against the St. Louis virus; one of the seven showed equal protection against the western strain of virus. Of sera from seven horses that had encephalomyelitis, all showed protection against the St. Louis virus and five also against the western equine virus. In an accompanying paper Cox, Phillips and Kirkpatrick⁴ showed that horses were susceptible to intracerebral inoculation of the St. Louis virus and that recovery from infection with the western strain of virus did not protect against infection with the St. Louis virus.

Hammon¹⁵ reports a study of an epidemic in the Yakima Valley of Washington during the summer of 1940. Howitt ran neutralization tests with sera from fifty patients; fourteen (28

per cent) neutralized the western strain of virus only, eight (16 per cent) neutralized the St. Louis virus only, and twenty-eight (56 per cent) neutralized both viruses. In a control group consisting of sera from seventy-five people not having encephalitis three (4 per cent) neutralized the western strain of virus, nineteen (25.4 per cent) neutralized the St. Louis virus, two (2.7 per cent) neutralized both viruses and fifty-one (67.9 per cent) did not neutralize either virus. Hammon believes that the clinical, epidemiological and laboratory evidence points to the presence of both viruses during the epidemic and that some of the patients probably had mixed infections.

Howitt had previously reported similar results in her study of California cases. At that time there was much migrant labor from areas where the St. Louis type of encephalitis had been prevalent and the St. Louis antibodies present were thought to represent previous exposure.

The epidemiology of encephalitis due to the equine type of virus is not entirely clear at present. Contact infection does not occur among laboratory animals nor did it occur in Record and Vawters³⁴ experiment where sick horses were placed in a corral with well horses. No cases are reported of attendants of patients becoming sick. There are two reports of infections among laboratory workers and statements that others have occurred.^{10, 18} In one case the route of infection is not definitely known; in another the person was heavily sprayed with a highly concentrated virus preparation. The disappearance of the disease in horses with the onset of frost early suggested the possibility of insect vectors. Ten varieties of *aedes* mosquitoes have been known to be able to transmit the disease under experimental conditions; eight the western strain and seven the eastern strain. Five varieties able to transmit the western strain are found in Minnesota.^{6, 28} No *aedes* mosquitoes have been found infected under natural conditions but recently Hammon¹⁷ has reported the isolation of the western virus from a lot of *Culex tarsalis* mosquitoes caught in the state of Washington. To date, *culex* and *anopheline* mosquitoes have not been shown able to transmit the disease experimentally. The tick, *Dermacentor andersoni*, is able to transmit the western strain of virus under laboratory conditions but no infected tick has been found in nature.²⁹ This is not a Minnesota tick. Recently it has

been reported that one of the conenose bugs, *Triatoma sanguisuga* Le Conte has been found infected with the western strain of virus under natural conditions in Kansas and is able to transmit infection to the guinea pig in the laboratory.²² This bug has not been found in this area. The reservoir of infection is at present not known. TenBroeck has suggested that birds would be a more likely reservoir than the horse. The eastern strain of virus has been isolated from pheasants and pigeons,^{1,8,32,33} and the western strain from a prairie chicken.³ TenBroeck³⁰ showed that blood sera of a turkey and some chickens from an area where the disease occurred in horses had protective power against the eastern strain. Howitt²¹ demonstrated antibodies against the western virus in chicken sera and a quail serum but she also stated that she had tested blood of chickens raised under such conditions that contact with the virus was not possible and demonstrated neutralization of the western virus so that protection by chicken sera may not always indicate previous infection.

The host susceptibility of both strains of virus is very wide. Some of the animals in which the western strain of virus has produced disease by various routes of inoculation are: the guinea pig, rat, mouse, rabbit, monkey, pigeon, calf, goat, duck, gopher (*Citellus richardsonii*), vole, burrowing owl, guinea fowl, gamble and English sparrow, quail, junco, thrasher, wild rats (cotton, kangaroo and wood rat), various species of wild mice, puppies, young turkeys and chicks.²¹ Most of these and others resistant to inoculation with the western virus have been shown susceptible to inoculation with the eastern type. The western strain of virus has been isolated from the brain of a deer.³ Some evidence of natural infection of the gopher (*Citellus richardsonii*) with the western virus has been presented by Gwatkin.¹⁴ In addition to looking for virus, Hammon⁶ has examined blood sera from a wide variety of animals and found antibodies against the western virus in the serum of the cow, dog, goat, horse, pig, sheep, field mouse, white-footed mouse, weasel, chicken, domestic mallard duck, Peking duck, domestic goose, great horned owl, domestic pigeon, turkey, red shafted flicker, sparrow hawk, killdeer, ring-necked pheasant, California quail and robin; 32.4 per cent of seventy-four domestic, and 5.1 per cent of seventy-eight wild animals had protection. He suggested barnyards and fowl runs as possible sources of infection. While

vector and reservoir have not been established under natural conditions the epidemiology of the disease is most readily explained by the assumption of an insect vector (or vectors) and a host (or hosts). At present it is not clear how the virus gets through the winter months, since a chronic carrier state has not been demonstrated in any animal. We have no evidence of infection in any native tick in this area that might carry infection through the winter. It has been suggested that migratory birds might be a reservoir of infection. As yet it has not been possible to fit in the distribution of the disease in man with any known migratory path.

Minnesota's Experience with the Disease (1938)

In 1938 an extensive epizootic of equine encephalomyelitis again occurred in Minnesota; 23,686 horses were reported as affected. During that year forty-seven human cases of encephalitis were reported to the Minnesota Department of Health. The onset in thirty-six of these cases was between August 13 and September 20, a period during which infection with the equine virus might be expected. Sera were tested for neutralization of the western virus in twenty-one instances;* fourteen sera neutralized the western strain of virus. Two sera neutralized the St. Louis virus and one additional serum showed moderate protection after two years' standing in the ice box. Only the sera showing no neutralization of the western virus were run with the St. Louis virus so we have no data comparable to Hammon's. The distribution of the cases with neutralization of the western virus was predominately rural; ten lived on farms, three in small towns, and one in St. Paul. Six cases occurred in a rural area with a radius of about ten miles. Two cases had close contact with sick horses. In the others there is no history of any contact with sick horses. No individual had contact with any other case. There were eleven males and three females. The ages varied from one month to sixty-six years, two in the first decade, one in the second, four in the fourth, one in the fifth, three in the sixth, and three in the seventh.

*Most of these sera were run by the following: Dr. Carl TenBroeck of the Princeton Branch of the Rockefeller Institute, Webster and Wright of the Rockefeller Institute, or Dr. Charles Armstrong of the National Institute of Health. A few sera were run in the laboratories of the Minnesota Department of Health.

Clinical picture: In the typical case, onset was rather sudden with headache and fever. In a day or two drowsiness appeared and in the mild case no further symptoms appeared. In the more severe case drowsiness progressed to stupor, at times alternating with marked restlessness. The sensorium became cloudy and there was disorientation in all fields. In about a week the temperature usually began to drop and a few days later the patient's condition began to improve. On physical examination stiff neck and less frequently tremors were practically the only physical findings.

The symptoms at onset in thirteen positive cases were: headache 10; nausea 3; chills 3; vomiting 2; malaise 4; dizziness 2; drowsiness 2; stiff neck 1.

During the course of the illness, eight of the patients were either drowsy or lethargic; seven complained of headache; six were said to be irrational. Diplopia and photophobia were each complained of by two patients. The acute phase of the illness lasted two to three weeks. The majority of patients had a complete amnesia for the period of their severe illness. The period of acute illness was followed in most cases by severe weakness, (ten of thirteen cases).

The physical findings were: fever 13 (103°-105° maximum); stiff neck 7 (moderate degree); tremor 4 (facial and hands); Babinski 1 (unilateral).

Examination of the spinal fluid showed an increase of cells in every case. The counts ranged between thirty and 400 cells. A differential count was done in nine cases: in seven there was a predominance of lymphocytes, in two a predominance of polymorphonuclear cells. Pressure determinations, quantitative protein and sugar studies were not done frequently enough to justify special comment.

The fourteenth positive case has been reported in detail by Dr. R. V. Platou.²⁸ A one-month-old child had a ten-day febrile illness in August and about one month later was noted to be developing symptoms suggestive of Little's disease.

The history of a well-studied case follows.

Case History

A.M., a man, aged fifty-six, onset afternoon August 17, 1938, with nausea, dizziness and drowsiness. The dizziness and nausea persisted the next day. The patient stayed in bed, was restless, tossed from side to side; that evening light stupor occurred, temperature slightly elevated. On August 19 temperature 104°.

At times patient was restless and delirious, at other times he was stuporous and could not be roused. He did not recognize his family. August 20 stupor alternated with restlessness; temperature 104°. The periods of stupor and restlessness continued until admission to the University Hospital August 23. Just before admission patient appeared somewhat better and recognized his family.

Physical examination: Upon admission August 23 the patient was difficult to arouse; T. 101 (R), P. 100, R. 24, B.P. 200/110. There were fine scattered rales over the lung bases. Heart was enlarged. No positive neurological findings. August 24, spinal puncture; pressure 12 mm. mercury—Queckenstedt normal. There were 81 cells, of which 61 were polymorphonuclears and 20 mononuclears; protein 114 mg., sugar 104 mg. On August 25, spinal puncture, 99 cells, 70 pmn., 29 mono. On September 7 cell count 0, protein 40.1 mg. w.b.c.: August 24, 14,080; August 6, 10,000. Course in hospital: Temperature dropped from 101 to 100° on August 26; stayed at this level until August 31 when dropped to nearly normal. Was restless and semi-conscious first 2 days in hospital, then gradually less restless and slept better; incontinent first six days in hospital. Discharged August 15 with weakness as only complaint. Contacts: patient treated a sick horse from August 1 to August 11. Was not off farm for two weeks prior to the onset of his illness. Before that, his only trips were to a neighboring town for supplies. He had no contact with any sick person.

Symptoms Reported by Others

Howitt²⁰ has listed the main symptoms in thirty-one California cases where the sera neutralized the western strain of virus or where this virus was isolated. In order of frequency the chief symptoms were headache, drowsiness, fever, vomiting, stiff neck and lethargy. Other symptoms such as muscle spasms, convulsions, irritability, rigidity of extremities and dizziness occurred less frequently. Gareau¹² in his clinical study listed high temperature, headache, malaise, pains and aches, and mental sluggishness as the main symptoms. He especially stressed headache. Nausea, vomiting and anorexia were also common. Neck rigidity and Kernig's sign were usually demonstrable. Nystagmus, difficulty in swallowing and speaking, convulsions, muscular twitchings and tremors occasionally occurred.

Breslich, Rowe and Lehman² in their North Dakota study mention severe headache, fever, general muscular pains, backache, nausea and vomiting, dizziness and drowsiness. More severe cases progressed to delirium and coma. Stiff neck was the most common physical finding. Coarse intention tremors of the face and loss of abdominal reflexes were quite common. The Kernig sign was present less frequently.

The mortality is difficult to determine. In Minnesota diagnosis was not established by laboratory methods in any fatal case. Of the thirty-nine cases occurring between August 13 and September 20, five died. In Minnesota in 1937, of six quite definite clinical cases in one locality, two died. Gareau reports four deaths among twenty-nine clinical cases. Howitt, two of thirty-one cases, and the North Dakota investigators five of twenty-three cases.

Sequelæ appear to be rather uncommon. In Minnesota in only one reported case has it been recognized—the infant who developed the clinical picture of Little's disease. Davis has reported sequelæ in two children in California.⁵ Both had marked mental retardation and in addition one had some paralysis and the other blindness and deafness.

Gareau at the end of two years knew of five cases: three children with various types of paralysis and still showing improvement; two adults, one with disseminated sclerosis, the other had mental confusion and dizziness.

The patients in this study with sera neutralizing the Saint Louis virus did not differ clinically from those with sera neutralizing the western strain of virus. Of the Saint Louis type, two cases occurred in a rural area and one in Saint Paul.

Summary

Fourteen cases of encephalitis with neutralization of the western strain of equine encephalomyelitis virus are reported. The epidemiologic and clinical features are briefly described.

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METASTATIC BRAIN ABSCESES

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ABSCESES of the brain arising from a distant and seemingly unrelated focus often and unexpectedly presents a problem, difficult from a diagnostic aspect, deadly in its outcome and incomprehensible in its genesis.

Purulent disease of the bronchi and pulmonary tissue were recognized by Virchow, Gull, and others of that generation, as the chief causes of metastatic cerebral abscesses. This relationship still remains a curious phenomenon. In pyemia the brain seems more resistant to infection and formation of abscesses than other organs. This is well illustrated in their relative infrequency in ulcerative endocarditis. Shorstein thought that while possibly the brain had greater resistance to infective emboli in acute infections, its resistance in chronic cases was relatively weaker because of feeble production of antibodies compared with other organs. Pilot concluded the putrid abscesses usually found were due to a mixed infection of anaerobic organisms and streptococci and for their production it seemed necessary to have intermediate advanced lesions due to the same organism. These bacteria, particularly, develop in large numbers in the lung and have access to large vessels where thrombi are formed and carried by the blood stream to the brain. He thought the brain to be a good culture medium for these bacteria. Eagleton believed these brain abscesses were of venous origin and this explained the greater incidence of pulmonary antecedents over arterial-borne infections in ulcerative endocarditis. He also has shown that metastatic abscesses from ear and nasal sources do occur. Arnold found, experimentally, that the venous circulation from the head toward the heart is reversed when a positive intrathoracic pressure is encountered. Gardner surmised that coughing or straining, by causing this pressure, induced venous engorgement and arterial ischemia, thereby rendering the lodgment of an embolus easier and temporarily lowering the normal resistance of the cerebral tissue. It is significant that this close, or possibly closer, relationship between lung and brain is present in carcinoma of the lung. It seems paradoxical that

metastatic brain abscesses are rare in pulmonary tuberculosis. In short, the problem still remains unsolved.

Of the diseases of the lung associated with brain abscesses bronchiectasis is the main antecedent. In sixty-three cases of bronchiectasis, cited by Shorstein, the cause of death was bronchopneumonia in seventeen and brain abscess in thirteen. Apart from bronchopneumonia, brain abscess was more than twice as frequent as any other cause of death. Empyema was a far removed second to bronchiectasis. It occurred in cases where chest operations had or had not been performed. It seems clear that these operations bore no relationship to brain abscess formation. Gangrene of the lung was frequently cited. Nähter found purulent foci in the brain in eight out of 100 cases of pulmonary gangrene. This high percentage was not borne out in English and American series. Pulmonary tuberculosis, as already mentioned, was rare. Shorstein collected three cases, Claytor five and Parker one.

It has been pointed out that the division of bronchiectasis, lung abscess and empyema as separate antecedents is artificial. One may be instrumental in causing the other. All three are commonly present simultaneously, and there is always such a close relationship that it is reasonable to group them together. Other conditions mentioned are acute pneumonia, emphysema and bronchitis, the latter two being thought to be a coincidence. Claytor and Shorstein series are shown in Table I.

The cases here reported are from the services at the Ancker Hospital from the period 1924 to 1940. For comparative reasons all cerebral abscesses are listed. Their original source is shown in Table II.

A striking feature of this series is the number of pulmonary cases compared to those derived from the ear. This is at variance with the usual finding. For instance, Evans found 109 ear cases to forty-six pulmonary out of 194 cerebral abscesses. Weil estimated that 40 per cent were caused by otitis media. Practically all authors

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TABLE I. PULMONARY LESIONS INDUCING BRAIN ABSCESS

Lesion	Number of Cases	
	Claytor	Shorstein
Bronchiectasis	20	38
Empyema	10	15
Purulent Bronchitis	9	2
Gangrene	7	6
Tuberculosis	5	3
Abscess	3	2
Pneumonia	2	3
Bullet Wound	2	
	58	69

found pulmonary states second in frequency to ear conditions.

The distribution of the pulmonary cases is shown in Table III.

One case of lung abscess, in a young man with brain abscess, is not reported on account of lack of autopsy findings. One patient with lung abscess had pyemia, but is included in this group on account of the original condition of aspiration pneumonia and lung abscess. This group is subdivided into: (1) acute and (2) chronic—basing this division on the pulmonary condition. The acute cases are six in number: three bronchopneumonia, one miliary tuberculosis, one aspiration pneumonia with lung abscess and pyemia, and one congenital heart with pneumonia. The six chronic cases are: three bronchiectasis, two lung abscesses and one empyema.

An example of the chronic group is the following.

Case 5.—A white man, aged sixty, was admitted to the hospital February 3, 1936. He had been in rather poor health the past few years and he had had a chronic cough for four years. Three years ago he had had an actual hemorrhage and had had more hemoptysis lately. He was hospitalized in 1935 for six weeks on account of what was thought to be unresolved pneumonia. It was suspected at that time he might have a carcinoma of the lung.

The present illness began suddenly two weeks previous to admission with a chill which lasted almost three hours, followed by sweating. He seemed to be all right, except for loss of appetite, until January 30, 1936, when he had another chill and complained of pain

TABLE II. CEREBRAL ABSCESES (1924-1940)

Pulmonary	13
Ear	7
Nose	3
Osteomyelitis	3
Skull Fracture	3
Endocarditis	3
Leg Abscess	1
Tooth Extraction	1
Bullet Wound	1
Spina Bifida	1
	36

TABLE III. PULMONARY CONDITIONS

Bronchiectasis	3
Bronchopneumonia	3
Lung Abscess	3
Empyema	1
Cong. Heart-Pneumonia	1
Pulmonary Tuberculosis	1
	12

throughout his entire body. The next day he was unable to speak, had respiratory difficulty and was unable to swallow. The following day he regained his ability to speak and was apparently better, but he complained of a headache. The following day, February 2, 1936, he became quite weak and complained of more headache and difficulty in swallowing, and he vomited. The morning of February 3 he was about the same until noon, when he complained of a stiff neck and that afternoon he became delirious and saw things on the wall. He was stuporous at times. He was hospitalized at 8 p.m., February 3, 1936, and died twenty-four hours later.

This is rather typical of the chronic group. It is a history of years of chronic lung trouble which is suddenly overshadowed by symptoms of sepsis of the nervous system coming on suddenly, although somewhat gradual at first. Once established it rapidly progressed to death. The following is an example of a brain abscess following an acute pulmonary disease.

Case 4.—A white girl of six, who had been a "blue baby" and had shown signs of heart disease since birth, was admitted to the Receiving Room of the

Ancker Hospital, January 17, 1936. She died ten minutes later. A cursory examination revealed a stiff neck, marked clubbing of the fingers and cyanosis. She had been sick for one week from signs of an upper respiratory infection and had complained of pain in the legs.

the acute cases was 7.5 days. Of the chronic group one was ill nine years; the shortest six months, the average being four years. There were eight males and four females. Ages ranged

TABLE IV.

Case	Clinical Course of Neurological Complications	Duration	Post-mortem Report
1.	Fever, irritability, twitching left side, neck rigidity, drowsiness, convulsions, left hemiparesis, choked discs, stupor, purulent spinal fluid	28 days	Multiple abscesses in occipital right parietal and left temporal lobes—ruptured.
2.	Headache, fever, drowsiness, stupor, delirium, rigidity of neck, purulent spinal fluid	4 days	Multiple abscesses in left frontal temporal and occipital lobes—ruptured
3.	Drowsiness, fever, weakness, pain in neck, headaches, vomiting, stupor, Kernig, Babinski, purulent spinal fluid	8 days	Abscess right frontal lobe—ruptured
4.	Fever, headache, rigid neck, stuporous, purulent spinal fluid	7 days	Multiple abscesses in right occipital lobe.
5.	Chills, aphasia, headache, vomiting, neck rigidity, stupor, purulent spinal fluid	5 days	Abscess in left parietal lobe.
6.	Headache, fever, drowsiness, stiff neck, stuporous, purulent spinal fluid	4 days	Multiple abscesses in both occipital lobes—ruptured.
7.	Headache, weakness, fever, drowsiness, weakness left side, delirium, rigid neck, slow respiration, strabismus, left hemiparalysis, purulent spinal fluid	11 days	Multiple abscesses in pons and cerebral peduncle on right.
8.	Muttering delirium (picked up by police), stiff neck, fever, stupor, purulent spinal fluid	10 days	Multiple abscesses in occipital lobes, both temporal and parietal lobes, greater on left than right.
9.	Vomiting, headache, rigid neck, restless, semicoma, unconscious, purulent spinal fluid	4 days	Multiple abscesses, bilateral.
10.	Headache, fever, paresis left arm, right ptosis, drowsiness, hiccough, semicoma, spinal cells 342	8 days	Multiple abscesses.
11.	Convulsions, fever, drowsiness, rigidity of neck, purulent spinal fluid	3 days	Multiple abscesses.
12.	Chills, fever, listless, confused, stuporous	10 days	Multiple abscesses.

Post-mortem revealed a patent interventricular septum, brain abscess, pulmonary stenosis and meningitis. A culture from the meninges showed the presence of *Bacillus coli*. *Staphylococcus albus* (non hemolytic) and *Streptococcus hemolyticus* in small numbers.

The frequency of association between congenital heart disease and brain abscess has been commented on by Gowers, Shorstein and Parker. Secondary change in the lung and short circuiting of the circulation were believed factors in producing this association.

The average duration of the primary disease in

in all decades from thirteen months to sixty years, the acute group being the younger. In the following table are arranged the twelve cases. The sequence of neurological symptoms as they arose, their duration and post-mortem report are recorded in Table IV.

The general symptoms of the pulmonary group were no different from those of brain abscesses from other sources. They were headache, fever, rigidity of the neck, increase of cells in the spinal fluid (or purulent fluid), leukocytosis, drowsiness, delirium, stupor, unconscious-

ness. The initial symptom was usually headache, although chills, convulsions, vomiting or drowsiness were also noted.

The progress of symptoms after once starting was rapid. It made little difference whether the pulmonary condition was acute or chronic. The duration of the symptoms of abscess in the acute was nine and a half days and that of the chronic seven days. Of the entire group only one was in the hospital for treatment of the pulmonary condition. At the time of admittance to the hospital three were delirious, one stuporous, one unconscious and two died in the Receiving Room. There were localized findings in three cases. The remainder had only general symptoms of a purulent meningitis. Of the chronic pulmonary group four had multiple abscesses and two had single. This corresponds somewhat with larger series having up to 46 per cent single ones. The entire acute pulmonary group had multiple abscesses. The distribution favored no particular lobe or side of the brain. As expected there were no cerebellar involvements.

It is instantly apparent that the entire acute group were doomed on account of the multiplicity of abscesses. In the chronic group two were single. One of these presented some localizing symptoms. Unfortunately both had ruptured abscesses and purulent meningitis on admittance. However, every case is a law unto itself and no sweeping statement is justified. Some fundamental factors that must be considered in dealing with a patient of this group are: (1) the 50 per cent or less possibility of the abscess being single; (2) the general condition of the patient as to ability to stand surgery; (3) the presence of localizing symptoms; (4) the primary disease. Cases successfully treated are recorded. Our attitude should be of an open mind, fully realizing the odds against survival, but when the situation warrants, the opportunity should be grasped and risks, although heavy, should be taken.

The second group found in this series was composed of cases associated with ulcerative endocarditis. In acute fulminating pyemia the brain, as already mentioned, is rarely affected. In the protracted complicated illness of chronic cases the brain, along with other organs, suffers from the deposition of purulent emboli and brain abscesses may result. The outlook after this event is practically hopeless, the main interest being pathological rather than clinical. When brain

abscess develops, these patients die, because it is the last and most lethal of a series of complications which in themselves would ultimately prove fatal. Three patients constituted this group; two had infarcts of brain, spleen, kidney as well as brain abscesses. Their illness was prolonged and complicated. The third was somewhat different in that no infarcts were found except one in the brain.

Case 13.—A white woman of forty-four suddenly developed pain in the right lower quadrant. Two days later she developed chills and high fever. The chills continued intermittently for three weeks. She then entered Ancker Hospital in a weak, listless, anemic condition. A blood culture of *B. coli* was found on six different occasions. She had occasional chills and her temperature ranged from 99 to 105. A few superficial abscesses were found to contain *B. coli*. She improved under sulfanilamide until approximately two months after the onset of her illness, when she suddenly developed a chilly sensation of the left side which was superseded by a left hemiplegia and some loss of sensation. She regained some of her sensation, but in a few days had a relapse and died.

The autopsy diagnosis was: septicemia, abscess in the right parietal lobe surrounded by an area of softening, acute and chronic pyelonephritis, ureteral stone, and acute splenitis. The sequence of events was apparently pyelonephritis, endocarditis, septicemia, brain infarction and abscesses.

The third group of cases is that associated with suppurative processes which had subsided in three instances and improved in one. In some the original condition had healed so long ago that no casual connection was immediately suspected. An example is:

Case 15.—A white child, of seven months, developed an infection of the face two weeks after birth. Following this an ulcer of the left leg appeared and healed in four weeks. Within a month jerking of the right arm appeared and ceased under calcium therapy. It reappeared in another month and again ceased. There was then a definite latent period until three weeks prior to admittance, when the child seemed ill, had a stiff neck and a large head was noted.

On admittance an enlarged head, dilation of the veins of the scalp, tense fontanel, slight rigidity of the neck, slight fever, leukocytosis and 1,711 cells in the spinal fluid were noted. During the next five weeks the cell count diminished, a diagnosis of left frontal abscess was made by aspiration, a craniotomy performed, and the abscess drained.

Table V briefly describes the original infection, clinical course of cerebral symptoms, and findings on autopsy or operation:

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The characteristics of this group, besides the lengthened interval between the original infection and cerebral involvement, is the slow development of symptoms compared with the pulmonary group at the age of three, undoubtedly had a skull injury and a possible osteomyelitis from falling on a pair of scissors. This assumption seems justified by the appearance of two spicula of bone up

TABLE V. METASTATIC ABSCESS OF BRAIN SECONDARY TO INFECTION THAT HAD SUBSIDED OR IMPROVED

Case	Original Infection	Duration of Illness	Clinical Course of Cerebral Complications	Duration before Death	Autopsy or Operation
13.	Ulcer of leg 4 plus Wassermann Paresis	1 month	Numbness and paresis of left hand. Jacksonian attacks, left side, beginning in hand. Cerebration slow, drowsiness, stupor.	48 days	Walled off abscess in right parietal lobe. 4.5 cm. in diameter. Softening around abscess.
14.	Osteomyelitis left leg—right shoulder in 1928 and right thigh in 1931. Well until 1939.	3 years	Headaches for three weeks. Pain in neck three days. Slight neck rigidity. Right knee and ankle jerk greater than left. Babinski (?) on right, stupor, purulent spinal fluid. Coma.	4 weeks	Large abscess in left occipital lobe, ruptured into ventricle. Osteomyelitis of occipital bone.
15.	Infection of face Ulcer of leg.	4 weeks	Jerking movements right arm for two weeks following infection. Ceased and returned one month later and ceased under calcium therapy. Two months later malaise, stiff neck, large head. Spinal cells 1711.	4 months	Craniotomy. Very large abscess in left frontal region.
16.	Age three—stab wound of scalp, infection, osteomyelitis. Well 19 years. Age twenty-two—acute respiratory infection, five days. Temperature 102.	Scalp 3 weeks healed 3 spicules of sequestra appeared until age twelve. Respiratory infection five days.	Headache one week after respiratory infection. Vomiting, fever, drowsiness, lethargy, stiff neck, weakness in left arm and leg. Spinal cells 450. Deepening coma.		Craniotomy two months after onset. Pocket of yellow fluid—large abscess chained. Culture <i>Staphylococcus hemolyticus</i> .

and the finding of single abscesses and localizing signs in three of the four. In Case 14 there probably is a justifiable objection to the diagnosis of a metastatic abscess on account of the osteomyelitis of the occipital bone. However, the two appearing synchronously after an interval of eight years and the element of metastasis being present in one lesion, and possibly in both, justified, I believe, its inclusion in this group. In Case 16, the nineteen year interval between cranial injury and formation of brain abscess presents an intriguing problem between cause and effect. This patient,

to the age of twelve. At operation the aspiration of yellow fluid from within the brain substance, followed by aspiration of an abscess, suggests the presence of both a cyst and an abscess. The connection between her acute infection and abscess formation recalls Weed's experiments in producing brain abscesses. He found that introduction of pyemic organisms into the blood stream only on rare occasions produced an abscess, but that after injury of the brain they could be produced regularly in this manner. In Case 16 it is probable that similar mechanisms were in-

volved, viz.: local injury, cyst formation, reduced local resistance, acute infection, metastasis and abscess formation. On x-ray and at operation no sign of osteomyelitis or meningeal adhesions was found. In Case 14, x-ray studies would probably have helped the localization.

Summary and Conclusion

From a clinical study of nineteen cases of metastatic brain abscesses we draw the following conclusions:

1. The prognosis is mainly dependent on the acuteness and severity of the primary infection.

It was hopeless in the acute pulmonary and endocarditis groups of this series.

2. In the chronic pulmonary group, although no favorable cases were present, single abscesses were found in 33 per cent. The possibility of favorable surgical intervention in an occasional case is mentioned. The rapidity of progress of the cerebral complications seems characteristic.

3. In Group 3, the marked interval between the original infection and abscess formation, the comparative slowness in development, and the finding of single abscess, seem to make this group, from a prognostic standpoint, favorable.

THE ADVANTAGES AND LIMITATIONS OF CERTAIN PRACTICAL ADJUNCTS IN THE DIAGNOSIS OF DISEASES OF THE HEART

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FOR thorough appraisal of the cardiovascular system the physician first utilizes the advantages of a carefully elicited history, which is then supplemented by complete physical examination of the patient. In using the expression, "complete physical examination," I do not mean an examination of the thorax, but a complete examination of the entire body. Limited examinations for apparently local complaints are to be condemned as inconclusive, treacherous, and of extremely doubtful value to both the patient and the physician. In the daily practice of medicine the physician who adheres strictly to the routine of complete and thorough examination repeatedly discovers evidence of disease entirely unrelated to the patient's presenting complaint, and frequently the patient has been completely unaware of its existence. Such unexpected revelations may comprise conditions of serious or potentially serious consequences which may be amenable to surgical removal and cure, whereas failure to recognize them at an early date likely would lead to disastrous eventualities.

It is not my intention to deal extensively with the methods of physical diagnosis in this discussion, for it must be assumed that every physician is well grounded in this subject and is thoroughly imbued with the knowledge that this approach to

a diagnostic problem must necessarily supersede all other methods of clinical detection. However, with the advent of ever increasing diagnostic adjuncts, both laboratory and bedside, the tendency is developing in the medical profession to employ such methods at the expense of physical diagnosis. Progress in any field of endeavor results in a constant addition of new facts, methods, and apparatus which may result in a maze of confusion unless the individual physician has more than a casual acquaintance with the newer knowledge pertaining to disease.

The patient suffering from heart disease, and especially the patient in whom heart disease is suspected to exist, frequently has become the pathetic victim of mechanistic diagnosis. The tendency exists today for hurried questioning of the patient, followed by a rather cursory and limited physical examination, and then profound emphasis is accorded instrumental methods of examination, motivated by the hope that an instrumental method will provide the answer in one way or another. This prostitution of modern medicine is lamentable because it fails to carry out the physician's obligation to the patient and greatly devaluates the merits of the diagnostic adjunct in question.

An accessory method of diagnosis should never be employed with the idea of superseding of careful history-taking and thorough physical ex-

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amination. The various accessory methods must always be supplemental, and it is extremely important that the clinician who uses such special methods thoroughly acquaint himself with both their advantages and limitations and their ever changing order of importance from case to case.

I shall not attempt to discuss all the adjunct methods of cardiac diagnosis, but rather limit myself to those that are now directly or indirectly available to all physicians. Even though the physician may not be equipped to perform roentgenographic or electrocardiographic examination, he must acquire the knowledge necessary to interpret the results of the examinations and to correlate intelligently the findings with the complaints and the physical observations concerning the patient involved. To accept the purely technical report of a laboratory or of another physician on such isolated evidence is unsound and fraught with great danger; unless the physician who refers his patient for special study of such a character is able to interpret the resultant findings and apply them to his special problem in an understanding manner, he would be safer in relying wholly on his own observations as derived from careful physical examination.

Roentgenography

Roentgenography is a simple method to determine the size, shape, and position of the silhouette of the heart and aorta. However, certain facts regarding the variations in its technical application must be realized. For the prompt and accurate determination of the size and contour of the cardiac silhouette the teleroentgenogram is very satisfactory. In this method the corrected distance of the roentgenogram from the tube has been determined, which results in minimal distortion of the size of the silhouette. For practical purposes the extension of the silhouette to the right of the midsternum is added to the corresponding extension from the midsternum to the left border of the silhouette. This value is then compared to the transverse internal diameter of the bony thorax. Normally, the total transverse diameter of the cardiac silhouette is roughly less than 50 per cent of the internal diameter of the thorax.

However, certain variables enter into the interpretation of the cardiac silhouette, and unless they are appreciated serious errors may occur. When the diseased heart or the heart suspected

of being impaired is being dealt with, it is always extremely important to ascertain whether or not the heart is enlarged. The enlarged heart, with rare exceptions, is structurally impaired, although the reverse of this statement emphatically is not true. The roentgenographic silhouette of the heart is greatly influenced by the habitus of the patient and these variations must be thoroughly appraised when judgment is expressed on the interpretation of the size of the heart.

In the tall asthenic type of bodily build, the longitudinal diameter of the thorax is lengthened and further increased by a relatively low diaphragmatic level. Under these circumstances the cardiac silhouette frequently is centrally situated, elongated and narrow, and on casual inspection gives the impression of a heart presumed to be smaller than the average normal heart. Such silhouettes may be considerably less than 50 per cent of the internal transverse diameter of the thorax in size and yet represent abnormal enlargement of the heart. It is necessary, under these conditions, to appraise carefully the contour of the silhouette, seeking abnormal prominences of the regions of the individual chambers of the heart, alterations in the shadow of the visible aorta, and, particularly, prominence of the conus arteriosus, the region in which the pulmonary artery joins the right ventricle. A prominent conus arteriosus commonly is present in mitral stenosis, even in the presence of an otherwise normally sized cardiac silhouette. It also occurs in various types of congenital cardiac defects.

In the short, stocky and overweight patient the exact reversal of these conditions exists. The thorax is diminished in its longitudinal diameter, the diaphragm is situated at a rather high level and the lateral diameter of the thorax commonly is increased. This status results in a cardiac silhouette that is broadened in its lateral diameter and shortened in its longitudinal diameter, and it appears to be pushed up by the high level of the diaphragm. Such a silhouette not uncommonly is interpreted as significant of an enlarged heart, whereas actual measurement and correlation of the cardiothoracic ratio reveal the contrary. In this connection the well-established fact should not be forgotten that within physiologic limits the weight of the heart parallels the weight of the body. In extreme obesity, the physiologic limits

may be rapidly supplanted by pathologic limits. Pericardial adhesions and calcification of the pericardium are not uncommonly demonstrated.

Lateral and oblique views of the heart at times give valuable additional information, but surely do not fall into the category of routine procedures. This is likewise true of roentgenograms of the esophagus, which at times are of distinct value, particularly in the detailed study of the auricles.

Roentgenography is an extremely valuable supplemental method of cardiac diagnosis, but its value obviously rests on an understanding of its advantages under one set of circumstances and of its limitations under another. It is a method that today is available to virtually all physicians, and its full utilization is urged with the reservation that the interpretation of its results be applied in an intelligent manner.

Roentgenoscopy

Roentgenoscopy is of definite value under certain circumstances, but certainly should not supplant teleroentgenography as a routine procedure. It is obviously valuable in observation of the beating heart, permits the recognition of abnormal pulsations and of fixation of certain regions of the organ and enables the examiner to determine the pulsation of regions of increased density which may or may not be proved to represent dilatation or aneurysm of the aorta. Special attention to the valvular regions usually permits identification of calcium deposits when they are present in the valvular leaflets and rings, notably in the aortic valve. Cardiac infarcts, particularly when they are situated near the apex of the heart or are encroaching on its lateral border, will be detectable by a region of systolic expansion, instead of the normal recession. Extensive thinning of the left ventricle, the so-called ventricular aneurysm, consequent to a large myocardial infarct, may be visible clearly as a bulge in the cardiac silhouette.

Electrocardiography

Electrocardiography now has been accorded widespread use so that the patient frequently demands that a record be taken. The layman cannot be expected to have sound judgment in this matter because he is inclined to view this clinical adjunct as a method that never fails to inscribe the answer as to whether the heart is normal or impaired, and, if impaired, how seriously. Un-

fortunately, this lay philosophy has become disseminated in an alarming manner among physicians, and a method of precision is being unwisely applied and its observations are being badly interpreted.

The electrocardiogram is the graphic inscription of the electrical activity of the heart, and it must be made under prescribed and universally accepted methods of standardization. Electrocardiography is a delicate method of registration, and one which is subject to certain environmental variables and definitely to physiologic variables in the individual patient, even when the heart is perfectly normal. As in the case of the teleroentgenogram, the habitus of the patient somewhat influences the basic characteristics of his electrocardiogram. Changes in posture invariably result in minor variations in the resulting electrocardiograms, so that the physician must be aware of these physiologic variations if he is to avoid error. He must not accord importance to minor variations in two electrocardiograms, when one was recorded while the patient was sitting erect in a chair and the other was recorded with the patient in the recumbent posture.

The determination of a clear-cut electrocardiographic abnormality never should be the basis for final commitment, because the making of such a commitment is unwise and dangerous until judicious correlation of the findings of abnormality is made with the patient's clinical history, physical observations and other pertinent data. It is a great mistake for a physician to attempt to express a diagnostic opinion on the basis of the electrocardiogram alone. Nevertheless, this practice has become so universal that I fear the future of electrocardiography will be one of increasing uncertainty and confusion, rather than one of progressive certainty and clarity. A new order of specialist has been evolved, the so-called electrocardiographer. He has acquired an electrocardiograph and has learned enough of its technical secrets, invariably acquired through the help of a high-pressure salesman, to permit him to register reasonably good records. He then learns the basic principles of electrocardiographic interpretation, so that his trained eye reaches that stage of perfection whereby he is enabled at a glance to detect abnormalities. These are then recorded at the bottom of the folder. This could be an ideal point at which to stop, but such self-restraint usually is not forthcoming; instead, he

ponders a moment and then inscribes a clinical diagnosis for a patient with whom he has had only casual contact and whom he has not examined (because the patient was referred by another physician). The resulting clinical diagnosis may be either vague or definite. Numerous examples could be presented, but I am certain that I need mention only a few to verify the correctness of my contention. This electrocardiogram then, suggests "myocardial disease," "coronary disease a likelihood," "myocardial weakness," and even the prediction of "valvular disease" has been encountered.

Needless to state, this increasing perversion of a valuable method of diagnosis is lamentable. The so-called electrocardiographer has placed himself in an unenviable position: his procedure has removed him from the rank of a physician to that of a restricted technician. I am certain that this was not his original intention.

The physician who conscientiously desires to learn electrocardiography can readily do so, but I sincerely advise him to learn this science before he purchases an instrument. A few years ago the cost of electrocardiographic equipment precluded its widespread use, but now certain less expensive and certain cheap portable units have made the method available to many more physicians than formerly. Censure must not be limited to the medical profession alone, because unwarranted high-pressure salesmanship on the part of certain manufacturers has promoted this unfortunate situation. It has recently come to my attention that physicians who were contemplating the purchase of electrocardiographs frankly stated to salesmen that they were not familiar with the interpretation of electrocardiograms, only to be assured that for a nominal fee the records could be sent to the manufacturer for interpretation. Such conduct must not be tolerated by the medical profession, and it is only the individual physician who can alter this situation by his refusal to enter into such a ridiculous arrangement. He should critically examine various instruments before concluding to purchase one.

The electrocardiogram is the registration of antagonistic electrical effects which vary from instant to instant; they are antagonistic in a regional manner, as, for instance, between apex and base, anterior and posterior surfaces, right and left sides of the heart. The electrocardiogram

is influenced by innumerable alterations that may affect the muscle mass of the heart or isolated regions only; or combined alterations may exist circumstantially in such a manner that a perfectly normal record may be obtained of a seriously impaired organ.

During recent years, as the result of meticulously thorough studies based on careful clinical, electrocardiographic, and pathologic correlations, the term "electrocardiographic pattern" has come into general use. These studies have been signal contributions to electrocardiography, yet, like the science itself, have been misinterpreted and abused, and minor graphic alterations casually resembling the more characteristic findings frequently have been accepted as being genuine, when in reality they are counterfeit. For example, in many cases acute myocardial infarction inscribes a certain type of electrocardiogram that is well known and is peculiarly characteristic. However, in many other cases this is not true. It is in such instances, particularly, that the clinician must utilize his clinical sense to the utmost and not be misled by a record that does not reveal the conditions which he anticipated. More than one infarct occurring within a short period, infarction involving the interventricular septum, and pericarditis, may obliterate many of the characteristics of the classic pattern. Even when the classic pattern is existent, I demand the right to examine the patient before making a definite commitment.

Many other examples of a similar nature could be presented, but I am hopeful that my attitude in this matter has been clearly stated.

Circulation Time

Several simple methods have been devised for estimation of the time of circulation between two known points in the system. I shall limit my discussion to consideration of a satisfactory and simple method which can be performed in the office or at the bedside in a very short period, without any elaborate equipment. A 10 c.c. syringe and needle are all that are required. By the injection of 5 c.c. of sodium dehydrocholate (decholin) into the median basilic vein, the time of the transit of this substance to the tongue can be determined. The patient recognizes arrival of the substance at the tongue by a sudden, bitter, and very pungent taste which very promptly is lost. The instant the substance has been in-

jected is noted by the second hand of an ordinary watch or a stop watch, and is recorded; again, the instant the patient tastes the material (which he indicates by the declaration, "now") is noted. The normal time for this circuit to be made ranges from ten to sixteen seconds.

During the time it leaves the median basilic vein and until it is delivered to the arteries of the tongue, the substance reaches the right side of the heart, passes through the pulmonary circulation, reaches the left side of the heart and is disseminated into the systemic arterial circulation. Marked shortening of the circulation rate provides extremely valuable data referable to circulatory shunts, such as occur in patency of the interauricular and interventricular septa, and by means of which some of the material as well as some of the blood escapes the pulmonary circulation and passes immediately into the left side of the heart. Diminution of the circulatory rate to seven or eight seconds or less is significant.

In a contrary manner, prolongation of the circulation rate may occur, particularly in congestive heart failure when venous pressure is increased beyond normal. The value of the method in such circumstances is doubtful, owing to the fact that other obvious factors indicating a state of failure are present.

Conclusions

It thus is apparent that each clinical adjunct considered herein is of distinct value in the diagnosis of diseases of the heart, yet no single method is fruitful under all circumstances. Each has its advantages and limitations, which vary under different disease states and almost from patient to patient, and it therefore is imperative that the physician who utilizes these supplemental clinical procedures clearly recognize these facts, interpret the observations judiciously and wisely, and always correlate them with the patient's history and the observations made at careful physical examination.

RESULTS OF THE LOWMAN OPERATION FOR PARALYSIS OF THE ABDOMINAL MUSCLES

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LITTLE attention has been given to the loss of integrity of the abdominal musculature. In 1931, Lang¹ stated that an operative method for overcoming paralysis of the abdominal muscles, though desirable, had not been attempted so far as he knew.

Paralysis of the musculature of the abdominal wall is far more serious than has been previously appreciated and may interfere markedly with the harmonious function of the body as a whole. This was Lowman's³ viewpoint in 1931. He had observed patients who had poor locomotion which apparently was due to poor stability of the trunk on the pelvis. He also thought that there might be a specific relationship between abdominal paralysis and paralytic scoliosis.

The practical use of fascial transplants to repair structural defects has been well established, but Lowman was the first to devise a plan whereby a new insertion was provided for the remaining unparalyzed abdominal muscles by the use of fascial strips. He used this method in several cases² and found that it was possible and practical to recapture some of the lost power in the presence of partial paralysis of the abdominal muscles. He also found that stabilization of the trunk on the pelvis could be improved.⁴

Since 1933, thirty-one operative procedures of the Lowman type have been performed on twenty-nine patients at the Gillette State Hospital for Crippled Children. This procedure was used in cases in which the musculature of a portion or of all of the abdominal wall was weakened. Fascial strips were used to bridge the paralyzed region and thus to form a new point of insertion for

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the remaining uninvolved muscles. Many patterns were formed by the fascia according to the distribution of abdominal paralysis. In all cases, the paralysis was due to poliomyelitis.

The strips were extended subcutaneously to each costal margin, usually to the seventh and eighth ribs in the midclavicular line (Fig. 2). This gave an additional new insertion for the unparalyzed

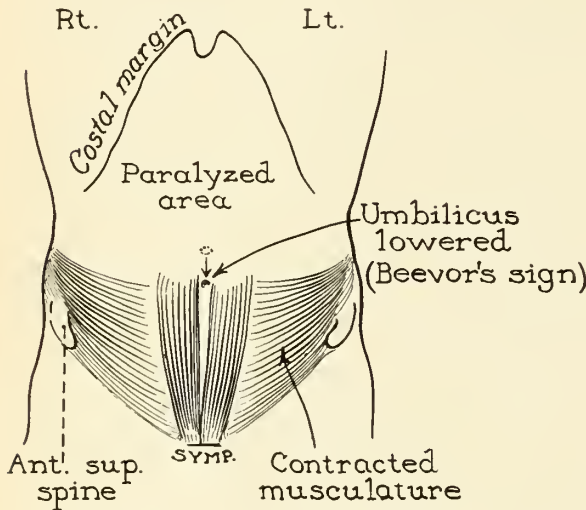


Fig. 1. Beevor's sign indicates paralysis of upper portion of rectus muscles.

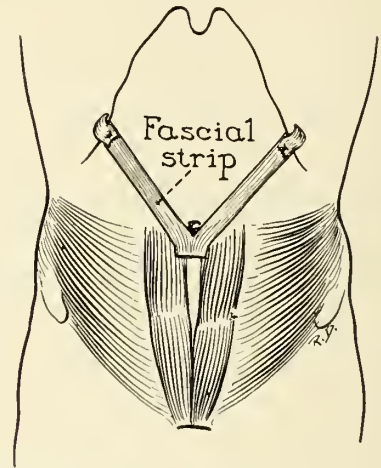


Fig. 2. Fascia lata transplant for paralysis of the muscles of the upper part of the abdomen.

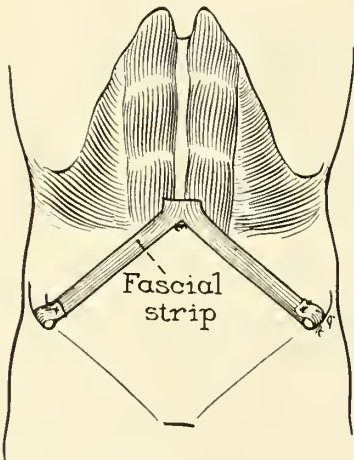


Fig. 3. Fascial transplant for paralysis of the muscles of the lower part of the abdomen.

In seven cases the umbilicus shifted downward with contraction of the abdominal muscles. Beevor's sign (Fig. 1) thus revealed that the upper portions of the rectus muscles were paralyzed. Fascia was obtained from the thigh in a rectangular piece. Throughout most of its length this was split into two or three strips as the condition indicated. The one end which was to be fixed around the umbilicus was left intact, however. Through a small skin incision, the fascia was placed around the umbilicus and sutured to the adjacent anterior sheath of the rectus muscle.

abdominal musculature. The muscles thus working through the fascia helped support the weakened part of the abdominal wall. In some cases two strips instead of one were used to each side.

In ten cases there was a paralysis of the lower abdominal muscles. The fascia was attached to the rectus sheath and muscle and around the umbilicus. A strip was extended subcutaneously to each anterior superior iliac spine (Fig. 3). In some of these cases a strip was also extended from the umbilicus to the symphysis pubis. A drill hole large enough to admit the strip of fascia was made in the region of each anterior superior spine. The end of the fascial strip was pulled through this hole, doubled back and sutured to itself with silk. The fascia to the symphysis pubis was extended inside the rectus sheath to the pubic bone where it was run through a slit and sutured to itself. In five of these cases only one strip of fascia was used to correct the paralysis of the lower abdominal muscles. The fascia pulled out in two of these cases and at another operation the fascia was extended to the anterior superior iliac spines.

Examination in six cases revealed that the umbilicus shifted laterally instead of vertically when the abdominal muscles were contracted. Beevor's sign thus indicated that the oblique and transverse abdominal muscles were paralyzed on one side. In these cases the fascia was an-

chored about the umbilicus as in the preceding cases. Then one strip was brought subcutaneously to the costal margin as far laterally as possible making as wide an angle as possible and

per quadrant was good. The remaining portion of the abdominal wall was unsupported (Fig. 6).

In four cases the muscles of the entire abdominal wall were paralyzed. In these, the fascia

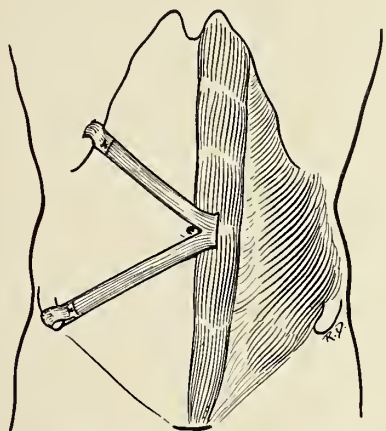


Fig. 4. Fascial transplant for paralysis of the muscles of the right side of the abdomen.

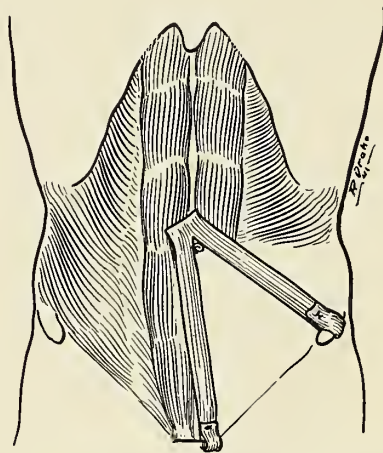


Fig. 5. Fascial transplant for paralysis of the muscles of the left lower quadrant of the abdomen.

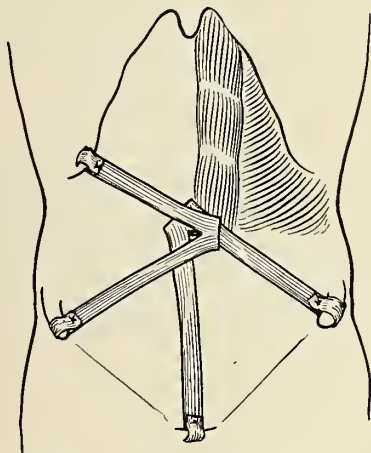


Fig. 6. Fascial transplant for paralysis of all abdominal muscles except the left upper quadrant.

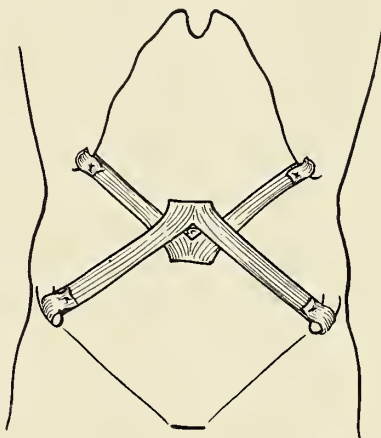


Fig. 7. Fascial transplant for paralysis of all the abdominal muscles.

directing the line of force more parallel to the fibers of the oblique muscles. The lower strip was taken through a subcutaneous tunnel, through a drill hole in the anterior superior spine of the ilium on the same paralyzed side. The fascia was sutured with silk (Fig. 4).

One patient had paralysis of the abdominal muscles in the left lower quadrant. In this case the umbilicus shifted upward and to the right. The fascial strips were attached to the umbilicus, and to the left anterior superior spine and through the sheath of the left rectus muscle to the pubis (Fig. 5).

In another case the musculature in the left up-

per quadrant was good. The remaining portion of the abdominal wall was unsupported (Fig. 6).

In June, 1941, when the follow-up study was made, the period which had elapsed after operation was from six to ten months in seven cases, one year in seven, two years in four, three years in four, five years in three and six years in four cases.

Results

Of the twenty-nine patients who were subjected to operation, twenty-eight were improved. All the patients who had paralysis of the entire

abdominal wall had difficulty in voiding and defecating. After the operation they were able to perform these acts comfortably and also they felt more secure.

It was noted that the fascial bands were at first small and string-like. Later, after training, these bands became strong, rope-like cords. Some patients, particularly those who had weakness of the upper part of the abdominal wall and had been unable to raise the head, could accomplish this easily after operation. Some of the patients eventually were able to rise unassisted to a sitting position.

The support given between the thoracic cage and pelvis decreased the lumbar lordosis in all the cases in which this deformity was present. Bulging of the abdominal wall was decreased. Only fourteen patients had to continue to wear support of some kind.

The most noticeable results in all the cases in which improvement resulted from operation were as follows: fatigue was lessened; the patients could stand and sit without tiring, and they were able to perform the acts of walking and sitting better; the gait was more stable; they could use their braces better. The support between the thoracic cage and pelvis enabled the patient to swing the legs better even when they were wearing braces.

Effect on scoliosis.—In twenty of these cases scoliosis was present at the time of the first examination. Additional treatment for this condi-

tion was necessary in every case. In nine of the cases there was no deformity of the spinal column before the operation. No deformity developed in any case afterward so far as was ascertained.

Summary and Conclusions

Thirty-one operations were performed on twenty-nine patients; the first operation in two cases was unsatisfactory and another operation was performed. Only one patient did not improve after operation.

This procedure was used primarily to reinforce the weakened abdominal wall and secondarily to aid in the prevention of scoliosis. Apparently it was a worth-while procedure from the standpoint of stabilizing the abdominal wall but was probably of no value in the prevention of scoliosis.

After reinforcement of the abdominal wall, sitting and walking can be performed better, the gait is improved even with the presence of braces on the extremities, fatigue is lessened, lumbar lordosis and bulging of the abdominal wall are decreased and control of the bladder and function of the bowel in cases of paralysis of the entire abdominal wall usually are improved.

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THE DIAGNOSIS OF THE ACTIVITY OF PULMONARY TUBERCULOSIS

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THE determination of the activity or inactivity of a tuberculous lesion is a problem that frequently confronts the general practitioner and occurs occasionally in the practice of almost every specialist. It is a problem of importance because failure to appreciate activity may mean failure to forestall a long and disabling illness and even death. On the other hand, the misguided treat-

ment of an inactive lesion means loss of time and money to the patient and frequently the serious disruption of his life.

The concept of activity of a tuberculous lesion is purely clinical. An active lesion is one which is unstable and likely to increase. Conversely, an inactive lesion is one which is stable and unlikely to spread. The diagnosis of such a lesion by no means precludes the presence of living tubercle bacilli. Since such bacilli are always potentially

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dangerous, it follows that diagnosis of inactivity must be made with reservations.

In arriving at a judgment of activity, the local symptoms of the pulmonary disease, such as cough, expectoration, chest pain, and hemoptysis, are usually considered first. In a general way the more such symptoms are present and the greater their severity, the more likely it is that the lesion is active. However, the differential value of such local symptoms is not great because they are all frequently absent in the presence of active tuberculosis and may all be present, including hemoptysis, with a thoroughly stable and inactive lesion.

The general or toxic symptoms of tuberculosis, such as fever, sweats, tiredness, loss of appetite, and loss of weight, are of more value. In the presence of a tuberculous lesion and in the absence of any other cause, they constitute a rather dependable evidence of activity. The most important thing to remember about all symptoms, both local and general, is that their complete absence is compatible with active and progressive tuberculosis.

Physical findings should be mentioned rather for the sake of completeness than because they are helpful in the diagnosis of activity. Abnormal physical findings are frequently entirely absent in progressive tuberculosis and, conversely, extensive abnormal signs including numerous moist rales may be found over lesions that have been stable and inactive for years.

Laboratory findings are often valuable in making a diagnosis of activity. The presence of tubercle bacilli in smears made from plain or concentrated sputum specimens is a definite and valuable evidence of activity. If bacilli are present in such small numbers that culture or guinea pig inoculation of sputum or gastric contents is necessary to demonstrate them, the significance of the finding in terms of activity is not clear. For example, tubercle bacilli are said to have been demonstrated by such methods in gastric contents of persons whose chest x-ray showed no lesion except calcified hilus glands and even in persons without any demonstrable tuberculous focus.⁴ Such findings obviously cannot be considered as proof of an active pulmonary process at least until such apparently paradoxical results are explained. One must also remember that not all acid-fast bacilli produce tuberculosis. Approximately 50 per cent of gastric specimens

that show acid-fast bacilli on smear will not produce tuberculosis in guinea pigs.⁴ Ten per cent of cases of pulmonary malignancy¹ and an undetermined percentage of lung abscess, bronchiectasis, and other chronic pulmonary lesions occasionally show a few acid-fast bacilli on sputum smears. Therefore, a single report of a few acid-fast bacilli which cannot be confirmed is very poor evidence of activity.

An elevated sedimentation rate, leukocytosis, and an increase in the percentage of polymorphonuclear cells and monocytes are all nonspecific evidence of activity analogous to general symptoms, such as fever, loss of appetite, and loss of weight. In the presence of a tuberculous lesion and in the absence of any other explanation, such evidence is important. The sedimentation rate is the most sensitive and therefore the most valuable of these findings. Just as in the case of symptoms, it should be stressed that negative laboratory findings are of no value in ruling out activity of a tuberculous lesion. Active and progressive tuberculosis with normal sedimentation rate and normal white count and differential is a common occurrence. This is especially true of the so-called subprimary tuberculous lesion which may follow soon after infection in the adult and is by no means an innocuous lesion.²

X-ray findings are the most important single factor in the diagnosis of activity of a tuberculous pulmonary lesion. The x-ray film may permit a definite diagnosis of active disease in the absence of any confirmatory evidence from clinical or laboratory findings.³ On the other hand, negative x-ray evidence, unlike negative clinical or laboratory evidence, is of distinct value in arriving at a diagnosis of stable or inactive disease.

In interpreting the x-ray evidence, three types of findings must be considered: first, the presence or absence of effusion; second, the presence or absence of cavity; and third, the nature of the infiltration. The presence of an effusion, diagnosed by physical findings or x-ray and confirmed by aspiration, should be considered an evidence of active tuberculosis unless some other cause can be found. The presence of cavity is an equally dependable sign of activity of a tuberculous lesion. It is true that occasionally tuberculosis heals completely leaving an epithelialized tissue defect or cavity, but such cases are uncommon and in general the presence of cavity means active disease.

To understand the basis of an x-ray diagnosis of activity in tuberculosis one must be familiar with three different pictures of tuberculous infiltration. The histological significance of these x-ray findings is not yet well understood and the three types of lesions grade into each other without any distinct line of separation. There are also a considerable number of other x-ray appearances that can be produced by tuberculosis but these will not be considered, some because they are so unusual as to be relatively unimportant, and some because they are of no aid in arriving at a diagnosis of activity.

The first important type of infiltration is the so-called "soft" or "exudative" lesion made up of small cottony spots or mottling of rather light density and with hazy and indistinct borders. Such an appearance is not indisputable evidence of tuberculosis, but it is pathognomonic of an active lesion and as such is about as dependable as a positive biopsy in the diagnosis of carcinoma. With such an appearance in all or part of a pulmonary lesion, if the diagnosis of tuberculosis can be made at all, the diagnosis of active disease can be made with assurance, even in the absence of any confirmatory clinical or laboratory data.

The second important type of x-ray lesion is made up principally of streaks or linear shadows with somewhat indistinct margins. Any mottling present is more dense than in the first type of lesion and has more sharply defined borders. With this type of infiltration, the roentgenologist may say that the disease does not appear entirely arrested, but he cannot make a definite diagnosis either of activity or of stability. It may be possible with confirmatory clinical and laboratory evidence to make a definite diagnosis of activity. To diagnose an inactive lesion with such an x-ray appearance, all clinical and laboratory data must be consistent with inactivity and, in addition, the lesion must show no significant change either for better or worse on x-ray examination over a period of several years. Even then the diagnosis of stability should be made with reservations and the patient should not be discharged but should be followed indefinitely with x-ray films at six-month intervals.

The third type of infiltration to be considered is that made up of fine, string-like, sharply demarcated streaks and dense, discrete, and often calcified nodules. In this type of lesion the roentgenologist may diagnose inactive or arrested disease with considerable accuracy but not with absolute finality. No type of x-ray picture gives any assurance that all the tubercle bacilli have been killed or even permanently imprisoned in scar or calcium. Even such an apparently healed lesion may break down, sometimes after years of stability, and produce progressive and dangerous disease. A patient with any definitely tuberculous pulmonary lesion should never be told that his disease is cured or that it is only a scar and of no importance. He should be encouraged to have x-ray films made at six-month or at least yearly intervals throughout his life, so that if reactivation does occur, it will be diagnosed early.

Conclusions

1. A diagnosis of active pulmonary tuberculosis can often be made on the basis of a single x-ray examination even in the absence of any confirmatory clinical or laboratory data.

2. Frequently x-ray examination of a tuberculous pulmonary lesion does not permit any definite diagnosis either of activity or stability, but in many such cases a definite diagnosis of activity can be made with the aid of clinical and laboratory evidence.

3. The absence of clinical and laboratory evidence of activity is of no positive value in establishing a diagnosis of a stable tuberculous lesion.

4. An absolutely dependable diagnosis of healed tuberculosis cannot be established on any basis whatever and therefore all patients with tuberculous pulmonary lesions should be followed indefinitely with repeated x-ray examinations.

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CLINICAL-PATHOLOGICAL CONFERENCE

◆ MINNEAPOLIS GENERAL HOSPITAL ◆

Frank C. Andrus, Pathologist

CHRONIC NEPHRITIS AND POLYCYSTIC KIDNEY DISEASE

Presentation of a Case

The case was that of a sixty-year-old colored male who was admitted to the hospital on December 1, 1941, and who expired on December 6, 1941. His first admission to the hospital was in May, 1939, when he complained of dizziness for one week's duration which came on when he stood up or walked. He experienced no dizziness while lying in bed or sitting up. Past history revealed no headaches, diplopia, tinnitus, spots before his eyes, earaches, or buzzing in his ears. He gave a history of having had yellow fever many years ago. The cardio-respiratory and genito-urinary histories were negative save for vague pains in the region of his kidneys on occasion. Physical examination revealed a well developed and well nourished colored male. The pupils were round and equal and reacted to light and accommodation. The blood pressure was 165/100. The pharynx was slightly injected. The cardiac dullness seemed to be displaced to the left. Examination of the chest revealed no râles. The spleen, kidneys, and liver were not palpable. The abdomen was negative. The prostate was slightly enlarged. Remainder of the examination was negative. The laboratory findings on this admission were as follows: The specific gravity of the urine was 1.024; it was acid in reaction and contained one plus albumin, no sugar, 1 to 2 red cells, and occasional pus cells per high power field. The hemoglobin was 86 per cent, the erythrocyte count 4,500,000 and the leukocyte count 6,000. A diagnosis of post-infectious vertigo or mild labyrinthitis was made. The patient was discharged as improved.

He was next seen at this hospital when he was admitted for the last time on December 1, 1941. He had had a sore throat and rhinitis for four weeks, generalized weakness for three weeks, and dyspnea and puffiness of the hands and edema of the legs for three weeks. He also had had anorexia for three days. The patient also had been slightly nauseated for a few weeks but this had disappeared during the last week of his illness. He vomited four to five times but the vomitus was not large in amount. No change had been noted in the genito-urinary system. He had had nocturia two to three times for the past twenty years. There had been no hematuria or history of previous edema or dyspnea. He did not have any visual disturbances, headaches, or chest pains other than a sensation of substernal constriction on exertion.

Physical examination on admission revealed the patient's blood pressure to be 190/110 and the pulse 90

per minute. His breathing was very deep and almost Kussmaul in character. He was not cyanotic or orthopneic. An urinous odor was noted to his breath. There was puffiness of the eyelids. The eye movements were normal and the pupils were normal in their reaction to light and accommodation. The mucous membranes were moderately pale and there was evidence of recent bleeding from the gums. A postnatal discharge was present. The contour of the chest was symmetrical. The breath sounds were normal and no râles could be heard. Examination of the heart revealed slight enlargement of the left ventricular type. The rhythm of the heart was regular and a soft blowing systolic murmur was heard over the apex. The abdomen was flat and the liver edge was not felt. No fluid wave or shifting dullness was noted. No masses were felt. Rectal examination revealed a slightly enlarged prostate. There was a one plus pitting edema of the ankles and lower legs. The venous pressure was 11 cm. of citrate solution. The patient developed an oliguria during hospitalization.

Laboratory findings were as follows: Serologic tests for syphilis were positive. The hemoglobin was 52 per cent with an erythrocyte count of 2,810,000 and a leukocyte count of 10,600. The urine had a specific gravity of 1.015; it contained three to four plus albumin on several occasions, no sugar, no casts, 5 to 6 red blood cells, and 2 to 3 pus cells per high power field. The blood urea nitrogen was 127 mg. per cent and the creatinine 11.5 mg. per cent. The uric acid was 6.5 mg. per cent. The carbon dioxide combining power was 17 volumes per cent. The plasma proteins revealed the albumin to be 5.52 grams per cent, the globulin 2.61 grams per cent, and the fibrinogen .28 grams per cent. A six foot heart plate revealed cardiac enlargement of the left ventricular type. A minimal calcified tuberculosis was noted in the left infraclavicular region.

The patient became markedly hyperpneic. A pericardial friction rub was heard. He became markedly weakened and dyspneic and finally expired on December 6, 1941.

Clinical Diagnosis: Chronic nephritis.

Autopsy Findings (Dr. Fingerma): The body was that of a well developed and well nourished colored male. There was a two plus pitting edema over the pretibial area. Cyanosis was noted over the lips and fingertips. There was no jaundice. The pupils were round and equal and measured 4 mm. in diameter.

Upon opening the abdomen, the peritoneal surfaces were found to be smooth and shiny. The peritoneal cavity contained 1000 cc. of clear fluid. The liver extended 10 cm. below the xiphoid process in the midline and 8 cm. below the right costal margin in the midclavicular line. The pleural cavities were covered with many fibrous adhesions especially around the left apex. The right pleural cavity contained 500 cc. and the left 800 cc. of straw-colored fluid. Upon opening the pericardial sac, a shaggy, fibrinous exudate was seen which had the so-called "bread and butter" appearance over the heart.

The heart weighed 510 grams. The wall of the left ventricle was thickened and measured 22 mm. in thickness. The valves were normal. The root of the aorta was grossly normal. The coronary arteries were patent throughout and contained a minimal degree of sclerosis in a patchy distribution.

The right lung weighed 700 grams and the left lung weighed 670 grams. The large bronchi were filled with frothy mucous. The lungs were edematous. The lungs contained scattered areas of consolidation.

The spleen weighed 170 grams and appeared entirely normal. The liver weighed 1800 grams. The capsule was rather tense. On cut section, the organ appeared congested. The gastro-intestinal tract was normal grossly. The pancreas and adrenal glands appeared normal.

The right kidney weighed 120 grams and the left kidney weighed 115 grams. The kidneys were shrunken and contained coarse deep pits on their surfaces. The capsules were strongly adherent and numerous cysts were seen on the surface and in the parenchyma of the kidneys varying from 3 mm. to 1 and 2 cm. in diameter. The cysts were present in both the cortex and the medulla of the kidneys. About one-third of the lower pole of the right kidney appeared to be the only area of normal kidney structure. The remainder of the kidneys were atrophic and cystic. The genital organs were normal. The bladder was normal.

The remainder of the examination was negative.

Anatomic Diagnoses: (1) Congenital polycystic kidneys; (2) chronic glomerulonephritis; (3) pericarditis; (4) myocardial hypertrophy; (5) uremia.

Discussion

DR. E. T. BELL: This renal disease and hypertension dates back to 1939. He gives a history of nocturia for twenty years. In 1941 he had uremia. He does have some edema which I presume to be cardiac in origin.

DR. G. E. FAHR: I don't think it could be cardiac with a reading of 11 cm. of venous pressure unless he had a higher venous pressure when he was at home and it was not taken right on admission.

DR. BELL: He also has an anemia which presumably goes with his uremia. That would mean that this is a chronic uremia. He has a story of two years of hypertension and uremia. He has a good deal of protein in the urine though he has not lost much protein from his blood. I think that the rather natural diagnosis here, in view of his slow rising blood pressure, would be chronic glomerulonephritis. The anemia means just simple chronic uremia. You can get that in any chronic uremia. I happen to know the answer here. This is a pretty tight case.

DR. FAHR: We have not ruled out polycystic kidneys. This is ruled out by palpation and pyelography. We had one case here where there was no enlargement of the kidneys. The diagnosis could not be made in the usual way. You have to think of very rare things here. The urine shows albumin and occasional white cells. His blood pressure goes up to 190/110 from 165/100; that's a little low, I would say, for the usual case of primary arteriosclerotic kidney disease. What did his eyegrounds show?

DR. L. J. PETIT: There were flame-shaped hemorrhages, but very little arteriolar changes. There was no papilledema.

DR. FAHR: That does not give you much. Flame-shaped hemorrhages do not mean anything.

DR. E. T. BELL: It would only mean hypertension anyway, no matter what. That would not tell us whether he had malignant hypertension, glomerulonephritis, or polycystic kidneys.

DR. FAHR: Was anything palpated in the abdomen?

DR. PETIT: There were no pertinent abdominal findings.

DR. FAHR: If he had a malignant hypertension, he would have had definite eyeground findings.

DR. BELL: With the blood pressure 190/110, he could get hypertensive retinitis; that may be the basis of his renal disease. At least, the question is whether we are dealing with hypertensive type of kidney, chronic glomerulonephritis, polycystic kidneys, or something else.

DR. FAHR: Is there nothing to make you think of a lymphatic infiltration of the kidneys in the blood studies?

DR. BELL: The monocytes are increased a little, but that is all right with a chronic uremia.

DR. FAHR: They get a secondary anemia frequently long before there are any signs in the blood, that is, before there is any azotemia.

DR. BELL: He had an acidosis too, you will notice. He probably had an increase in phosphorous and decrease in blood calcium.

DR. PETIT: The blood phosphorous was 11.9 and the calcium 7.6 mg. per cent.

DR. BELL: The edema was probably due to the fact that he could not put out any fluids. Did you take a culture of the pericardial exudate? We should do that, I think. The few we have taken cultures of have streptococci in them, probably a terminal invasion. That is an uremic pericarditis. He had only one-fourth of his kidney left. He lost about three-fourths of his kidneys from cysts.

DR. FAHR: You have here two kidneys in which approximately three-fourths of the substance is destroyed by cysts. Certainly there isn't one-fourth left in this portion. A man can live on one-fifth of his total portion.

DR. BELL: The interesting thing in this case is that this patient had two types of kidney disease. The polycystic kidney is a hereditary disease. If the history in this man's family be known, there is little doubt but that we would find other examples of it. It is dominant in inheritance. Most of the members of the family will have it. But they may have it in all kinds of degrees. Just like harelip, which varies in degree from a mere slit to a cleft palate, polycystic kidneys may be in different degrees. You can have enough kidney to get along on. In unusual instances, the

kidneys are not enlarged. These are the tougher ones to diagnose. The uremia here is actually due to an associated chronic glomerulonephritis. We can think of this man as having some degree of renal insufficiency through most of his life, I suppose. That suggestion of twenty years of nocturia means he had a compensatory polyuria. The patient had moderate renal insufficiency and secreted urine about the same right through twenty-four hours, therefore, he would have to get up and empty his bladder at night. The normal man at sleep does not excrete much urine; therefore, he does not have to get up. A man with renal insufficiency has to secrete all the time, otherwise he gets uremia. If this man had that twenty years, we can be sure that he had some degree of renal insufficiency. How long he has had glomerulonephritis is not known. They last ten years on an average in all our cases, but may run as long as twenty-five years. So he probably had it a long time. That is a disease that is most

often contracted in childhood but may be contracted any time in life, however.

DR. F. C. ANDRUS: Don't you think that this patient might have lived for some years if it were not for the glomerulonephritis?

DR. BELL: I think that he would have gotten along with one-fourth of his kidney. A rabbit will live with one-fourth of his kidney but his blood urea nitrogen is pretty high. If you take care of him carefully, he will live.

In testing kidney function you only find out how much functioning parenchyma the man has left. You are not testing tubules or glomeruli separately. In any test you use, you are always measuring how much kidney the patient has left. You are not testing the condition of the parenchyma as much as you are testing what he has left to work with.

PNEUMOTHORAX IN PATIENTS OVER FORTY

A survey was made of 431 white World War veterans in whom pneumothorax was instituted or attempted after they had passed their fortieth birthday, during a five-year period beginning January 1, 1935. Every one of the patients had a positive sputum and a roentgenographically demonstrable cavity at the inauguration of his collapse program. Eighty-one per cent had far advanced disease; 19% had moderately advanced lesions. The disease process was unilateral in 49.3% and bilateral in 50.7%. Fourteen per cent had at least one cavity whose diameter exceeded 4 cm. The average age was slightly under 44 years—7% were over 50. The duration of the patients' tuberculosis prior to the attempted induction of pneumothorax ranged from one month to 18 years.

Patients with apparently permanent closure of the cavities and conversion of the sputa were classed as "Successful" and these numbered 92, or 20.2%. The "Unsuccessful" numbered 48.7% and the "Impossible" 31.1%. The various complications of artificial pneumothorax occurred with no greater frequency than among younger patients. Death was due directly to the complications of pneumothorax in 5 patients. Sixteen of the patients who died had pure tuberculous empyemata, though it is difficult to estimate the degree in which the presence of intrapleural pus contributed to these deaths, for in all cases the pulmonary lesion was actively progressive. Including these 16 cases, the fatalities consequent to complications would number only 21 or 4.9% of the patients treated, about what may be expected in general.

The shorter the time the patient has been ill and the less extensive his lesion, the greater the chances for the

success of the therapy and the smaller the probability of occurrence of empyema. Closure of the cavity is effected earlier in patients whose disease history has been brief, though pleural effusions (a complication of little significance in most cases) are more likely to supervene in persons who have had tuberculosis only a short time.

The time interval of cavity closure and sputum conversion varies directly with the patient's age; most of the pneumothoraces became successful in the latter half of their first year. It seems advisable, therefore, to maintain pneumothoraces of doubtful efficacy for a longer time in persons over forty than would be wise in younger patients.

Bilateral pneumothorax, properly administered in carefully selected cases, is well tolerated and ordinarily occasions no marked respiratory embarrassment. The surgical division of pleural adhesions is necessary to the completion of the collapse in a large number of persons in the fifth decade, just as it is in younger patients.

Weighing the results and the complications, the authors conclude that artificial pneumothorax is of distinct value in the treatment of patients over forty. It is not as effective as in younger persons, but neither is any other therapeutic measure. Thus far it appears that artificial pneumothorax is enduring in its effects in persons over forty, but final conclusions cannot be drawn until most or all patients in the successful group have been observed for a sufficient length of time after reëxpansion to permit accurate estimation of the lasting effectiveness of their pneumothorax.—*Artificial Pneumothorax in Patients Over Forty* by SIDNEY DIAMOND and HUBERT T. IVEY, *Amer. Rev. of Tuberc.*, Apr., 1941.

HISTORY OF MEDICINE IN MINNESOTA

HISTORY OF THE MINNESOTA STATE MEDICAL SOCIETY

By ARTHUR S. HAMILTON, M.D.

Minneapolis, Minnesota

(Continued from January issue.)

On February 1, 1870, the Society met in the Historical Society Rooms in Saint Paul, on the first anniversary of its founding.

The president, Dr. Willey, addressed the members in the following words of welcome, which seem worthy of preservation:

Gentlemen of the Minnesota State Medical Society:

Assembled today upon the first anniversary of the formation of this Society, it becomes alike my duty and my privilege, to bid you, each one and all, a hearty welcome.

The incentives which have brought together so large a body of professional men at this inclement season of the year, many from remote sections of the state, and all at no little trouble and expense, are not the incentives of self-interest or self-congratulation, but they spring, we humbly trust, from the noble desire of sustaining and building up the profession we honor—the science and art of rational medicine—by meeting, consulting, and interchanging views upon subjects which everywhere and always must affect the well-being of communities. Let us lay broad and deep the foundation of a Society of which we may in time feel proud, and which shall endure, let us fervently hope, long after the responsibilities which now weigh on us have descended to other hands.

In commencing our labors, then, today, let us prominently bear in mind that no sectional interests, or motives merely personal, should influence our deliberations, but that a purely catholic spirit should pervade and govern us, so that in all our doings we may work harmoniously together for the advancement, usefulness and honor of our profession. Again, gentlemen, I bid you a cordial and hearty welcome.

Drs. Boardman, Kimball and C. E. Smith, a committee on credentials, reported thirty physicians as duly qualified for membership, and, on motion, they were elected.

Drs. J. H. Stewart, Richardson, Wharton, C. P. Adams and O. J. Evans appointed a committee to nominate officers for the ensuing year, submitted the list as appears in the table of officers,[†] and their report was unanimously adopted.

A committee at this meeting, through Dr. Richardson, also reported on the origin, cause and treatment of typhoid fever. It would be interesting at this date to know what was then current belief in so important a matter but, unfortunately, the record is not available.

Felicitations were exchanged with the New York State Medical Society.

The committee on Dr. Willey's prizes for the essays on "Epidemics and Endemics of Minnesota" and on "Cerebrospinal Meningitis" awarded both to Dr. W. W. Sweney of Red Wing, who modestly declined to receive the money awarded him, and endorsed the check to the Society as a "prize fund" for the ensuing year.

The president announced the following standing committees:

Executive Committee.—C. P. Adams, Hastings, Chairman; Franklin Staples, Winona; C. K. Bartlett, St. Peter; J. B. Phillips, St. Paul; C. E. Smith, St. Paul.

Finance Committee.—A. G. Brisbane, St. Paul, Chairman; W. H. H. Richardson, Winona; S. B. Sheardown, Winona; E. J. Davis, Mankato; J. E. Finch, Hastings.

[†]Hereafter the reader is referred to the table at the end of this article (to be published in a later issue) for the results of the annual election of officers.

HISTORY OF MEDICINE IN MINNESOTA

Publication Committee.—C. H. Boardman, St. Paul, Chairman; S. D. Flagg, St. Paul; D. W. Hand, St. Paul; E. H. Smith, St. Paul; S. B. Sheardown, Winona.

Committee on Ethics.—C. G. Goodrich, Minneapolis, Chairman; A. Wharton, St. Paul; C. Hill, Pine Island; W. W. Mayo, Rochester; Otis Ayer, Le Sueur.

Committee on Medical Societies.—F. H. Milligan, Wabasha, Chairman; A. B. Hawley, Red Wing; A. E. Ames, Minneapolis; J. B. Griswold, Taylors Falls; A. B. Stuart, Winona.

Board of Censors.—D. W. Hand, St. Paul, Chairman; A. Wharton, St. Paul; C. K. Bartlett, St. Peter; C. G. Goodrich, Minneapolis; L. Redmon, Preston.

Essayist for the Semiannual Meeting.—Dr. A. W. Daniels, St. Peter; Dr. S. D. Flagg, St. Paul (alternate).

Delegates to the American Medical Association.—H. H. Kimball, Minneapolis; C. A. McCollum, Minneapolis; J. H. Stewart, St. Paul; C. E. Smith, St. Paul; A. C. Wedge, Albert Lea; B. B. Palmer, Sauk Center; Wm. Thorne, Hastings; J. B. LeBlond, Brownsville; W. W. Mayo, Rochester.

Delegates to the National Pharmaceutical Convention.—A. B. Hawley, Red Wing; David Day, St. Paul; J. Perham, Anoka.

The president also announced the following special committees:

On Epidemics, Climatology and Hygiene.—W. W. Sweney, E. C. Cross, B. Mattocks, J. B. LeBlond, James S. McMasters.

On Practical Medicine.—C. H. Boardman, A. G. Brisbane, H. F. Noyes, Hector Galloway, J. B. McGaughey.

On Surgery.—F. Staples, J. H. Murphy, C. N. Hewitt, F. H. Milligan, E. J. Davis.

On Obstetrics and Gynecology.—A. W. Daniels, A. Wharton, A. J. Stone, Otis Ayer, W. L. Lincoln.

On Dermatology.—W. Banks, F. M. Rose, A. E. Senkler.

Dr. Hewitt, who was appointed essayist at the preceding annual meeting, read an essay on "The Relations which the Profession Sustains to the Public and the Duties Which These Relations Impose"; and, in the absence of Dr. A. E. Ames, who was in California during a portion of this year, Dr. Hutchinson read the address which Dr. Ames had prepared for the meeting. Unfortunately, neither address is now available.

Dr. Rhodes offered the following resolution, which was adopted:

RESOLVED, That in the opinion of this Society, laws so formed as to protect the people from the impositions of unqualified pretenders to the practice of Medicine and Surgery, would result in good, and further, that we believe that they could be so worded as to afford such protection; but we wholly disclaim any desire upon our part to have such laws on account of any benefit to us as medical practitioners.

Dr. A. B. Stuart offered the following preamble and resolution:

WHEREAS, Bidding or proposing for public or private business, especially where it renders the party liable to come in conflict with other members of the profession, has a tendency to lower the dignity of the profession, both in the estimation of its members, and in that of the public; therefore,

RESOLVED, That such bidding or proposing is, and shall be considered, unprofessional.

This resolution shall not be so construed as to apply to the acceptance of a position upon a stipulated salary.

The minutes do not clearly show what action was taken on this resolution other than that it was accepted and placed on file. The profession being then very much as it is now, it is likely that no further pressure was brought to bear on this chronically tender point.

As the meeting of February 1, 1870, in Saint Paul was the first at which a formal presidential address was given, it seems proper to quote Dr. Willey's address in full.

PRESIDENT'S ADDRESS

Gentlemen—

It is a requirement of our bylaws, and is both customary and proper, that such remarks shall be made by your executive officer, at the expiration of his term of office, as he may deem most conducive to the welfare and prosperity of the Society.

I do not propose a didactic essay, but simply desire to speak a few plain words, in the hope that our Association and its objects shall be steadily and earnestly sustained and persevered in, and that the good results which are already so apparent may be greatly augmented as the coming years pass before us.

Thus far, our meetings have been characterized by the utmost harmony—our number is rapidly increasing by the enrollment of good men from all sections of the state—and we may safely assert that the organization is already one of which, not only ourselves, but the citizens of Minnesota, may justly feel proud.

Physicians occupy the position of conservators of the public health—and, as health is the chiefest of all earthly blessings, those who by their skill contribute most to its preservation, and its rescue when in peril, are the greatest public benefactors.

Thus, as no communities are indifferent to the character and skill and ability of their medical advisers, we may rest assured that our efforts for mutual improvement in scientific attainments are silently appreciated and commended by all.

During the past year, old County Societies have renewed their vigor, and several new ones have been formed—these, as auxiliaries, will be henceforth pillars upon which the Society will securely rest.

While I fain would mention some which have worked very important results, yet it might appear invidious to others which have not done so well.

It is my duty, however, to recognize all transactions of Societies *officially* transmitted to me, and I therefore have to announce the following action of the Hennepin County Medical Society, duly attested by its able Secretary:

WHEREAS, Action of this body has been deemed necessary in order to prevent professional quackery in the matter of publishing surgical operations, etc., in the public journals:

RESOLVED, That any member of this Society who shall permit his name to appear in connection with a report of a surgical operation, or case of disease, in the public prints, or who shall furnish any secular journal with any such report for publication, shall be deemed guilty of gross violation of the Medical Code of Ethics, and of professional honor.

RESOLVED, That it shall be the duty of the Committee on Ethics to investigate each case, as it appears in print, and report the result to the Society at its next regular meeting; and the offender, if found guilty, shall be reprimanded by the President for the first offense, and summarily expelled for the second.

A true copy.

(Signed)

W. F. HUTCHINSON, M.D.

Secretary.

These are in strict accordance with the Code of Ethics of the American Medical Association, and I trust each County Society will adopt, and strictly enforce, similar judicious resolutions.

As the population of our state becomes less sparse, and our numbers increase, I trust that even the very remote counties will not be without well-organized, working societies.

As Minnesota is looked upon in this country and throughout Europe as a sort of sanitarium for many diseases, particularly those of the pulmonary organs, each Society should have its committee on climatology and epidemics, which should report annually to this Society, that statistics may be properly compiled and preserved.

I would further recommend that each member briefly record the name and type of every case of disease observed, so that at the close of each year, statistical information may be obtained of interest to the profession, and of vast importance toward a knowledge of the sanitary status of our state.

To ask the busy practitioner to record cases, as in hospital practice, is to ask what would rarely be performed; but the suggestion above implies no real labor, and its fulfillment will bring to each of you ample reward.

In this connection, I would respectfully suggest the appointment of a committee at this meeting to confer with our medical brethren in the Legislature, with a view to the preparation and passage of a bill providing for the registration of births, marriages and deaths. Connected with and under the supervision of the present able bureau of general statistics—now comprising agriculture, manufactures and population—the collection of *vital statistics*

would, to use in part the language of Dr. F. B. Hough, the able superintendent of the New York State Census, in 1855 and 1865, "form the basis of computations for life insurance, and present the elements of what is necessary to be known concerning the probabilities of life at different ages, the origin, range, and mutability of epidemics, and the influence of age, sex, locality and season upon disease."

The form of bill presented by Dr. Hough to the New York State Medical Society is an admirable one, and, with some modification for change of locality, would answer well the purpose.

All enlightened governments are actively alive to the immense importance of vital statistics, and Minnesota has never yet been backward in any work tending toward her social and political advancement.

At the last session of the Legislature, an act was passed with a view to the protection of the people from the evils of empiricism and quackery, and although I am informed by some of the members of that body that good has been accomplished in their respective neighborhoods, by summarily arresting the career of imposters, yet the law was a defective one in many respects, with no provision for its enforcement, and it has not met the expectations of its framers, or of the people.

That the principle involved is a correct one, admits of no doubt, but the application of legislative enactments in overthrowing the frightful evil has ever been a difficult one.

It has been suggested that this law, which is practically a dead letter, should be properly amended—also, that an act should be passed providing for a "State Board of Censors," to be appointed by the Governor, by and with the advice of the Senate, and, as in the admission of members of the other learned professions, make the *professional attainments and moral character* of the applicant the only tests for admission to practice in the state, without reference to any private opinions he may entertain.

All this is submitted to your better judgment for consideration, with the understanding that they are suggestions, not deliberate recommendations.

This is not "class legislation"—it is not for the benefit of the few against the many, but the very opposite—it is not for the benefit of the medical profession, as is so often falsely alleged—but it *aims at direct protection of the people against hurtful classes of men.*

Laws are enforced against those who, as thieves and assassins, despoil your property, or injure your persons—those who by false pretenses, and for their own base and selfish purposes, tamper with the health and lives of the afflicted. Such persons belong to a similar class of criminal offenders against public policy, and should be as promptly dealt with.

Steel said, in the *Spectator*, a century and a half ago: "There is hardly a man in the world, one would think, so ignorant as not to know that the quack-doctors who publish their great abilities are, to a man, impostors and murderers."

The public should know that all advertisements, circulars and certificates, calling attention to special branches of medical practice as inducements to patronage, stamp the authors at once as charlatans, and disqualify them from fellowship with honorable members of the profession.

A distinguished writer says: "The world is peopled by two classes of beings, who seem to be as cognate and necessary to each other as male and female.

"Charlatans and dupes exist by a mutual dependence.

"All bills which the former draw, the latter come forward at once and honor."

These quacks are not infrequently quite grave and reverend individuals, and exemplify the saying of Lord Bolingbroke, that "gravity is the essence of imposture," or of the humorist who said "The gravest beast was an ass—the gravest bird an owl—the gravest fish an oyster—and the gravest man a fool."

But this is of far more moment to the general community than to ourselves, as it is capable of demonstration that diseases are continually being created, as well as aggravated, by quacks and their remedies.

No man of self-respect, in any profession, will care how many practitioners center in his neighborhood, but will cheerfully welcome all of good standing—as it may be supposed the supply rarely exceeds the demand—yet no one of humane feelings can but deeply regret, when the community in which his lot is cast and in which he has a common interest at least, becomes the prey of cunning charlatans, who by smoothly worded promises, and specious practices, makes those who should be the subjects of the tenderest regard, and most skillful care—the sick and the suffering—the objects of spoliation and wanton experiment.

Enough of this. Addison says that, "Like the imperceptible insects which are discovered by the microscope, they cannot be made the subject of observation without being magnified."

The people being the source of political power, legislation is of course subservient to

popular sentiment and intelligence, and by educating the latter upon the foregoing points, the greater good, perhaps, may be obtained.

Medicine is essentially a practical science, and the merest tyro knows how brief has been the existence of systems based upon speculations and theories, instead of observation, analysis and induction.

While hobbies and dogmas and theories are to be avoided, it is well that each should strive to become proficient in one or more branches of our art, toward the study of which his inclination and mental habits lead him.

One must not only be well grounded in the elementary principles of medicine, but be above mediocrity in the practice of its several branches, before he can study special diseases with signal benefit—then, carrying out such study in an enlarged spirit, inclines to a better appreciation of disease in general.

Those of our medical brethren in the East, who are thus engaged, and whose names are as familiar as household words, are scarcely less erudite in other branches of medicine.

In my intercourse with members during the past year, it has been in the highest degree gratifying to note the liberality with which they patronize journals, and other current and standard medical literature.

One cannot overestimate the value of medical journals to the busy practitioner, particularly to him who is debarred from frequent fellowship with his brethren.*

There is no royal road to medicine, as there is none to heaven, or geometry, and it is only by careful observation, diligent reading and reflection, and the cautious application of deductions, that the physician becomes in time the scientific medical man.

A word upon a subject which justly claims no little attention. The almost criminal laxity with which examinations for life insurance are frequently made, is of incalculable wrong to the insurer and the insured. The examiner is not only the chosen, confidential adviser, but he holds the most important interests of his company, in his vicinity, under his control.

He should be alive to this great responsibility, and strive to become, not only a thorough diagnostician, but an expert in this particular sphere—he must not only be able readily to detect functional diseases and internal lesions, but he is appointed to a still higher task—he is to judge *prospectively* of the life of the applicant.

Goethe says: "Nature defies incompetency, but reveals its secrets to the competent, the truthful and the pure."

A few words more. Let us all remember that while we seek fame and fortune as proper objects of desire, yet that the practice of our profession should rest upon that philosophy which arises from "the noblest faculties of reason, and of the cardinal virtues of the soul."

Respecting our profession, we cannot but respect all fellow workers; and in our intercourse with each other, we should be full of that charity which is not strained, "but droppeth as the gentle rain from Heaven."

Especially should we assist and support our juniors.

Ordinarily, the lot of the young physician is tedious and toilsome, no matter how able and deserving he may be; to place obstacles in his upward progress to an honorable position and its compensations is cruel and unmanly; to cheer him on his professional way with kind words and still kinder actions is the part of the upright senior and fulfils the precept of the golden rule "Thy neighbor as thyself."

Our profession is not only governed by the code of laws of the American Medical Association, but it has a natural code of laws springing from a reciprocal system of feelings and sympathy pervading its members.

May this sympathy and fraternal spirit ever animate us—and may our profession ever be our study, our pride and our enthusiasm.

A special committee on the President's Address, submitted the following report, which was adopted:

The committee would respectfully report that they have given the suggestions of the address careful consideration, and advise the adoption of the following resolutions:

RESOLVED, That the Society reiterates the request made at the last annual meeting, to all members of the profession throughout the state, who have not already done so, to organize county societies.

RESOLVED, That said Societies be advised to make it incumbent upon their members to report annually the statistics of the diseases occurring in their practices, and that their Secretary report a summary of the same to this Society.

*See David Fairchild's article (to be published in a later issue).

We advise the adoption of a bill similar to that proposed by Dr. Hough to the New York State Medical Society, as in every way suited to the purpose of providing for the collection of vital statistics, and that with this recommendation, the matter be referred to our professional brethren in the Legislature.

Your committee, after serious deliberation, express the belief that laws regulating the practice of medicine, do not, and can not, reach the cause of the success of quackery among the people, but that that cause is to be found in the deficient knowledge on the part of the people in regard to the real ground upon which the practice of medicine rests, and that so long as that deficiency exists, quackery will flourish. If legislative action is to be had, it should be directed to the removal of that cause.

CHARLES N. HEWITT,
A. E. SENKLER,
C. HILL,
C. H. BOARDMAN.

Dr. Willey's recommendation in favor of an investigation of the climate of Minnesota and its relation to epidemics, a provision for vital statistics, a qualification for medical practice much as now employed, and his insistence on thorough fundamental preparation as preliminary to specialism in medicine show a desire for original investigation and an understanding of the essentials of medical practice quite equal to much more modern views on these subjects.

Dr. Wharton, for the committee appointed at the last annual meeting to prepare a Constitution and By-Laws, submitted a draft which after several amendments was adopted as follows:

CONSTITUTION of the MINNESOTA STATE MEDICAL SOCIETY

ARTICLE I

Section 1.—This Association shall be called the "MINNESOTA STATE MEDICAL SOCIETY," and shall be composed of members and honorary members.

Section 2.—There shall be an annual and a semi-annual meeting of the Society.

The annual meetings shall be held in the city of St. Paul, on the first Tuesday in February. The semi-annual meetings shall be held on the second Tuesday in June, the place to be determined by the Society at each annual meeting.

The object of the semi-annual meetings shall be more especially the promotion of professional culture and education.

Special meetings may be called by the President, upon the petition of ten members, twenty days' public notice being given previous to such meeting, in one or more of the daily papers published at St. Paul.

At all meetings fifteen members shall constitute a quorum.

ARTICLE II

Section 1. The Society shall constantly have in view:

First: The association of the profession for mutual recognition and fellowship.

Second: The maintenance of union, harmony and good government among its members, thereby promoting the character, interests, honor and usefulness of the profession.

Third: The cultivation and advancement of medical science and literature, and the elevation of the standard of professional education.

ARTICLE III

Section 1.—The members of this Society shall be regular practitioners of medicine and surgery in the State of Minnesota, who shall be elected by a vote of the majority, at any regular meeting, their eligibility having been previously reported upon by the Committee on Membership.

Section 2.—The officers of the county or district societies are required to report each year to the recording secretary of the state medical society, if auxiliary thereto, the names of all their members, to serve as a basis for the medical statistics of the state; and no physician

HISTORY OF MEDICINE IN MINNESOTA

not in good standing in his own county or district society shall be admitted as a member of the state medical society.

ARTICLE IV

Section 1.—Honorary members shall only be admitted by a vote of two-thirds of the members present at a regular meeting, having first been recommended by the Committee on Membership.

ARTICLE V

Section 1.—This Society shall have the power to censure or expel any member convicted of violating its provisions, or who may be guilty of any act which may be considered derogatory to the honor of the medical profession; but a vote of four-fifths of the members present shall be requisite for the expulsion of a member, which vote shall be had in consequence of a report from the Committee on Ethics, and at the next regular meeting subsequent to such report.

ARTICLE VI

Section 1.—The officers of this Society shall be a president, three vice presidents, a recording secretary, a corresponding secretary, and a treasurer, all of whom shall be elected annually, upon the report of a nominating committee, at the regular annual meeting. They shall severally perform the duties assigned them in the By-Laws, as shall also the standing committees.

ARTICLE VII

Section 1.—The following standing committees shall be annually appointed by the president, and shall each consist of five members: 1st, an Executive Committee; 2nd, a Committee on Finance; 3rd, a Committee on Publication; 4th, a Committee on Ethics; 5th, a Committee on Medical Societies.

Section 2.—The President shall appoint at each annual meeting, five censors, who shall be known as the "Board of Censors." They shall perform such duties as are assigned them in the By-Laws, and in the manner there prescribed.

ARTICLE VIII

Section 1.—County or District Societies may become auxiliary to this Society, by transmitting a copy of their Constitution and By-Laws for examination and record, and electing delegates to the annual meeting of this Society.

Section 2.—No county or district medical society, auxiliary to this Society, shall, by censor or otherwise, grant diplomas, or confer any right to practice medicine or surgery.

ARTICLE IX

Section 1.—No part of this Constitution shall be repealed, annulled, altered or amended, except at a regular meeting subsequent to one at which a proposition to that effect may have been made in writing, and then only upon a vote of two-thirds of the members present.

BY-LAWS

of the

MINNESOTA STATE MEDICAL SOCIETY

ARTICLE I

Section 1.—The president shall preside at all meetings, enforce a due observance of the Constitution and By-Laws; see that all officers and members of committees perform their respective duties; appoint all committees not otherwise provided for; give the casting vote only; sign diplomas and all other official documents requiring his signature and perform such other duties as pertain to his office by usage and custom.

Section 2.—The vice presidents shall assist the president in the performance of his duties, and in his absence shall preside in order of rank.

Section 3.—The Recording Secretary shall keep the minutes of the proceedings of all meetings, notify officers of their election, sign diplomas, and certify to all official acts requiring the same; receive the signature and initiation fees of the newly elected members, and do such other business as shall be required or as the Society shall from time to time

direct. He shall notify each member when his name occurs on any of the committees, which have work to perform for the next meetings, within two weeks after adjournment.

The corresponding secretary shall attend to such duties as naturally pertain to his office.

Section 4.—The treasurer shall receive all moneys due the society and pay all bills audited and approved by the Finance Committee, and countersigned by the president, keeping correct account of the same, and making a full and detailed report at the annual meeting.

ARTICLE II

Section 1.—The Standing Committees shall keep regular minutes of their proceedings, and furnish an authenticated copy to be deposited with the recording secretary.

Section 2.—The Committee on Ethics shall investigate all complaints of breach of etiquette or violation of medical ethics, and it shall decide all questions of ethics submitted to it. If any member shall be charged in writing with any violation of the provisions of the Constitution or By-Laws, or with unprofessional conduct, a copy of such charges shall be furnished him, and himself and his accuser cited to appear, when the committee shall proceed to hear the case, reserving its decision to be reported to the Society, when its action may be affirmed by a vote of four-fifths of the members present.

Section 3.—The Committee on Finance shall superintend all the monetary affairs of the Society, inspect and audit all bills and the accounts of the treasurer, and make such an assessment, by a pro rata tax upon the members, as may be necessary for incidental expenses.

Section 4.—The Committee on Publication, of which the recording secretary and treasurer shall be members, shall prepare, publish and distribute such of the proceedings, transactions, and memoirs of the Society as may be selected for publication; it shall supervise and edit all papers presented to the Society and ordered to be printed and report its doings at each annual meeting.

Section 5.—The Executive Committee shall digest and prepare the business of each meeting, recommend plans for the promotion of the objects of the Society, and in all things protect and superintend its general interests.

Section 6.—The Committee on Medical Societies shall consider and report on the organization of such associations as may desire to become auxiliary to the State Medical Society, and generally take charge of this department, making at each annual meeting as complete a report as practicable.

Section 7.—It shall be the duty of the "Board of Censors" to examine all applicants for the diploma of this Society. Three censors shall constitute a quorum. They shall require satisfactory proof of the applicant that he has studied medicine with some physician and surgeon duly authorized to practice his profession, at least for three years; that he has attended at least one course of lectures in a school of medicine recognized by the American Medical Association; and that he has been in reputable practice for a period of not less than five years; and that he is of good moral character. They shall then proceed to examine him in the several branches of medicine and surgery, and if such examination is satisfactory, they shall give a certificate to that effect to the president or recording secretary of the State Medical Society.†

Section 8.—On the presentation of such certificate from the Board of Censors, the president and recording secretary shall be, and are hereby authorized, to grant to every such candidate qualified to practice medicine and surgery agreeably to law, in the name and under the seal of the Society—a diploma in the following words, viz:

To all to whom these presents shall come or may in any wise concern: The president and members of the Minnesota State Medical Society send greeting:

WHEREAS (*Name and county of the candidate*) hath exhibited unto us satisfactory evidence that he hath studied medicine and surgery, for the time and in the manner directed by law, and hath, also, upon examination by our censors, given sufficient proofs of his proficiency in the healing art, and of his moral character: Therefore, by virtue

†The following items from the *Minneapolis Tribune* throw light on the significance of Sections 7 and 8: (*Minneapolis Tribune*, September 26, 1869): "A meeting of the Board of Censors of the Minnesota Medical Society will be held in Rochester on Thursday, the 30th of September, at the office of Dr. Mayo to examine parties not already legally authorized who may wish to receive authority to practice medicine." The subsequent papers make no reference to this meeting, but the following item is explanatory.

(*Minneapolis Tribune*, October 1, 1869): "The Medical Profession—At the last session of the Legislature, a law was enacted requiring all practitioners of medicine on or before the first of October, to file with the clerk of the District Court of the county wherein they practice, a copy of their diplomas, or a certificate of some county or state medical society, and subjecting all who attempt to practice medicine without first complying with this law, to a heavy fine. During the past few days the doctors in this vicinity have been busy hunting up their diplomas and certificates and filing them with the clerk of the court. About thirty have already complied with the law, while a number have failed to come to time. There will be lively times if some of these doctors are made to pay their fines."

of the power vested in us by law, we do grant unto the same (*name of the candidate*) the privilege of practicing medicine and surgery in this state, together with all rights and immunities which usually appertain to physicians and surgeons.

In witness whereof we have granted this diploma, sealed with our seal, and certified by our president and secretary. (*Place and date.*)

Section 9.—Before receiving such diploma the candidate shall pay to the recording secretary the sum of fifty dollars, and sign the following declaration:

I, A-B, do solemnly declare that I will honestly, virtuously, and chastely conduct myself in the practice of medicine and surgery, with the privileges of exercising which profession I am now to be invested; and that I will with fidelity and honor do everything in my power for the benefit of the sick committed to my charge. Which said declaration, so signed, shall be filed by the secretary in the archives of the Society.

Section 10.—The censors shall report annually to the Society the number and names of the candidates examined by them during the year.

ARTICLE III

Section 1.—Any member vacating his membership shall thereby be divested of any right or title to any portion of the funds or other property of the Society.

Section 2.—Every member, on admission, shall pay the sum of three dollars, as an initiation fee, and sign the Constitution and By-Laws, nor shall he be entitled to the rights of membership until the same is done.

Section 3.—All vacancies shall be filled, ad interim, by the president.

Section 4.—These By-Laws may be suspended by a three-fourths vote, at any regular meeting, and they may be repealed or amended by a similar vote, notice of the same having been given, in writing, at a previous meeting.

Section 5.—Rules of order, and all questions arising upon the same, shall be determined by parliamentary usage.

ARTICLE IV

Section 1.—This Society adopts, as part of its regulations, the Code of Ethics of the American Medical Association.

Just preceding the close of the meeting, the following resolution, on motion of Dr. Davis, was adopted:

RESOLVED, That the thanks of this Society are due, and are hereby tendered to the President, Dr. Willey, for the valuable aid he has rendered in perfecting its organization, and for the impartial and dignified manner in which he has presided over its deliberations; also, to the Committee on Arrangements, and to the physicians of St. Paul, for their generous hospitality and fraternal kindness.

On motion the meeting adjourned.

(*To be continued in March issue.*)

President's Letter

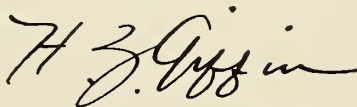
INDUSTRIAL health and industrial medicine automatically at this time take the center of the stage. Industrial medicine includes industrial hygiene and sanitation, industrial surgery, occupational disease and industrial psychology. The war effort demands not only industrial expansion of a stupendous degree but dislocations of personnel which complicate the situation. Fortunately our State Board of Health in its continuous program has been not only on the alert but has been busy accomplishing things. Its various divisions have been farsighted and active. Last fall the Office of Civilian Defense called a conference of representatives of the State Medical Association, the State Dental and Veterinary Societies, the State Nurses Association, and the State Board of Health to evaluate the status of medical health in defense. Later, the Sanitary conference gave over most of its program to medical health in civilian defense. In general, it seemed that the most logical procedure was the expansion of certain activities—nutrition, vaccination and immunization, first aid and safety measures, child health and industrial health—these objectives to be furthered in coöperation and coördination with all existing agencies in the state interested in these various fields. It was obvious that industrial health was of immediate concern. Although Minnesota is not ordinarily thought of as an industrial state, nevertheless in actual number of workers it stands in the upper third among the states.

A three-day Congress on Industrial Health under the sponsorship of the Council on Industrial Health of the American Medical Association has just been held in Chicago. Its reports and papers, to be published in the *Journal of the American Medical Association*, will be especially interesting. It was brought out very clearly that special training is necessary to supply industry with qualified physicians, and that at present there is so serious a lack of qualified physicians that urgent action is necessary. A twenty-hour course in industrial medicine and occupational disease in the senior year was regarded as essential and a six weeks' service in a plant hospital during internship, desirable where possible. Physicians who wish to enter this field as a specialty require graduate courses and longer internship. Schools of industrial hygiene and health are needed as we formerly needed schools of public health and preventive medicine. The medical needs of an industrial age are not being supplied.

In the meantime what can each physician do and what can the State Association do to bridge the gap? The knowledge of the practicing physician in methods of resuscitation and treatment of wounds, burns and fractures is a basis for industrial surgery and every effort should be made to keep informed along these lines. Knowledge can be gained by visiting the emergency hospitals of industrial plants—a knowledge which may be much more interesting and valuable to physicians in general practice than that obtained at famous clinics. A knowledge of industrial hygiene and of occupational disease is quite another matter and probably can be learned best in postgraduate courses or by actual experience in the plant. However, we can expand our histories to include a more careful analysis of occupation and environment in relation to the patients' illnesses, and keep careful records. In Iowa, institutes of industrial medicine have been held in several cities of the state by the State Health Commission and the State Medical Association. Other State Associations have tried other methods of instruction. Medico-legal problems involving the liability of the employer and the relation of the attending physician to the employee in the matter of compensable disabilities are of concern to all practitioners. Is our existing legislation up to date and fair to employer and employee?

Our Committee on Industrial Health under Dr. J. L. McLeod was very well represented at the Congress on Industrial Health; the members of the Committee have these matters under consideration and I am sure you will hear from them. Dr. L. W. Foker, director of the Minnesota Division of Industrial Health, is conducting investigations of the situation in various industries of the state, and is offering technical, medical, and engineering service to assist industry in the control of industrial hazards. He has prepared a report blank of industrial or occupational disease which will be distributed to all physicians. The new section on Industrial Health, in MINNESOTA MEDICINE, will keep us informed.

World War I was responsible for the promotion of public health and preventive medicine and also for the early phases of progress in industrial health. World War II doubtless will prove a great impetus to industrial hygiene and industrial medicine.



President, Minnesota State Medical Association

EDITORIAL

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INTERNATIONAL FORCE OR ORDER?

SOME individuals and some nations believe that war is a biological necessity in the working out of the survival of the fittest. In the philosophy of the Nazis the nation entitled to dominate is the one best able to invent and construct weapons of destruction and the energy to subjugate its neighbors by force and treachery. Peaceful relations with neighbors and respect for treaty obligations receive no consideration. The law of the jungle is the only law the Nazis know.

Japan has shown herself an able imitator of western civilization. She has thoroughly adopted the philosophy of the Nazi and applied it since

her first invasion of China. No doubt the Japanese have been viewing with alarm the marvelous development, both educational and industrial, going on in China the past fifteen or twenty years. To a nation like Japan that considers force the determining factor in international relations, a China developed along the lines of western civilization with modern weapons of war was a threat to be prevented, if possible. Hence, the destructive war which has been going on over four years.

The Japanese have undoubtedly been pressed for room. As brought out in a recent Bulletin of the Metropolitan Life Insurance Company,* the small island of Japan, no larger than the state of California, has a population of 490 to the square mile. Colonizing efforts on the part of the Japanese government to encourage emigration have not been very successful. The island of Japan is not sufficient in size or fertility to produce food stuffs for so many mouths and she must depend on importation of food and exportation of manufactured goods. Japan's position is much like England's. However, in England the population is more dense than in Japan, there being 700 inhabitants to the square mile. In Belgium, too, the figure is 706 to the square mile. These two countries have not attempted to enslave their neighbors, but have become industrial nations, have imported the additional needed food and have attempted to live in peaceful relations with their neighbors.

The population of Japan has been increasing, according to the Bulletin, at the rate of better than 1 per cent per year, until the war began. Each year some two million Japs have been added to the population of Japan—nearly as many as our two and a quarter million. This, however, does not satisfy the Japanese government which is carrying on active plans like the German and Italian governments to encourage greater increase in population. The excuse for recent encroachment on her neighbors is the teeming population in Japan, but the Japanese government is incongruously doing everything possible to increase that excuse.

One fact that has been overlooked in initiating

*Population Problems in Japan. Statistical Bulletin Metropolitan Life Insurance Company, 22:1, (Dec.) 1941.

the present struggle is that no one nation or group of nations so far allied can enslave the rest of the world permanently. The love of freedom and national patriotism are too strong factors to be long stifled. After this war is over the world will need an international organization with a police force behind it to assure the independence of nations, large and small, and to enable them to work out their destinies without fear of destruction by their neighbors.

POLIOMYELITIS, AN ALIMENTARY INFECTION

A RATHER complete résumé of the addition to our knowledge of poliomyelitis since 1934 appeared in the Progress section of the *American Journal of Medical Sciences* for December, 1941. Although admittedly little has been added in these recent years, and much remains to be learned before the infection can be prevented, certain facts have been fairly well established.

It is generally accepted that poliomyelitis is due to a filterable virus which can pass through the finest filters and membranes known. The virus has sufficiently distinct properties to permit its identification with as much certainty as it is possible to identify any well-known bacteria.

According to Sabin, the disease is contracted through the alimentary canal and multiplication occurs in the walls of the pharynx and small intestines. Elimination occurs in the feces. Whether the multiplication occurs in the nerve cells of the walls of the alimentary tract or in the non-nervous tissues is not known, but it is believed that the virus invades the central nervous system by two pathways, one leading to the medulla by way of the cranial nerves supplying the upper part of the tract or by the vagus, and the other by the way of the sympathetic fibers from the intestines to the spinal cord.

Extension from the pharynx accounts for bulbar involvement and signs, and extension from the intestinal tract results in affected trunk or extremities. In abortive attacks the process is checked before sufficient anterior horn cells are destroyed to produce paralytic symptoms.

This is a different conception from that formerly held and still adhered to by some that the infection reaches the central nervous system by means of the olfactory tract. Absence of the

virus in the olfactory bulbs contraindicates the nasal tract as the pathway of infection.

This newer conception of the location of the infection in the alimentary tract indicates that preventive measures should be shifted from nasal sprays which as a matter of experience have not proved effective to prevention of infection from contaminated food and drink. Insect vectors in the contamination of food become a possibility. Swimming in pools possibly contaminated by sewage should be avoided.

In the past there has been no definite or generally accepted idea of the manner in which poliomyelitis is transmitted. Alimentary tract transmission perhaps best explains the slight and scattered incidence commonly in evidence with this disease and indicates the likelihood of person-to-person contagion from one with an acute or abortive infection or from one who is a carrier.

THE CENTENARY OF THE FIRST USE OF ETHER ANESTHESIA IN A SURGICAL OPERATION

MARCH 30, 1942, marks the centenary of the first use of ether anesthesia in a surgical operation. It is fitting that the anniversary of this important event should not go unnoticed.

Humphrey Davy in 1800 suggested that nitrous oxide might be capable of destroying physical pain. Michael Faraday in 1818 wrote concerning the anesthetic properties of ether. Chloroform was discovered in 1831 by Guthrie, who called it by the rather startling name of "sweet whiskey." John D. Godman pointed out twenty years before Dr. Long that inhalation of ether vapor could produce anesthesia.

"Laughing gas" parties and "ether frolics" were a popular form of amusement in the early years of the nineteenth century. Among those who indulged in these ether frolics was Dr. Crawford Williamson Long, a graduate of the University of Pennsylvania, who was practicing in his native State of Georgia. In some of the parties held in his office, he noted that he and others who inhaled ether staggered, fell, but felt no pain from their bruises.

One of his acquaintances, James M. Venables, had frequently inhaled ether for its exhilarating effect. He had two tumors on the back of his neck and wanted Long to cut them off. The

operation took place on March 30, 1842, in Long's office. The doctor poured some ether on a towel and the patient inhaled the ether. Long excised the tumor and when Venables awoke, he did not believe that the mass had been removed until it was shown to him. Long wrote in his ledger: "James Venables, 1842, ether and excision tumors \$2.00."

Long wrote his first article on the subject of anesthesia in December, 1849, five years after Wells' demonstration of the anesthetic value of nitrous oxide, and three years after Morton's use of ether anesthesia in Boston. There is no question but that Morton, Wells and Jackson should be given credit for advancing the use of anesthesia. An important attribute of a discoverer is that he be able to recognize and advance his discovery, which, sad to say, Long did not do. However, it is to the honor of Long's memory that the trail of greed, scandal and tragedy that followed Morton, Wells and Jackson did not follow him.

The question of priority in any medical discovery is always uncertain and distasteful. No claim has been made that Long was the actual discoverer of ether anesthesia. However, he was the first to make a successful application thereof in surgery. It is for this that we honor his memory today.

CHARLES E. REA.

RECOMMENDATIONS TO ALL PHYSICIANS WITH REFERENCE TO THE NATIONAL EMERGENCY

I. Medical Students

A. All students holding letters of acceptance from the Dean for admission to medical colleges and freshmen and sophomores of good academic standing in medical colleges should present letters or have letters presented for them by their deans to their local boards of the Selective Service System. This step is necessary in order to be considered for deferment in Class II-A as a medical student. If local boards classify such students in Class I-A, they should immediately notify their deans and if necessary exercise their rights of appeal to the Board of Appeals. If, after exhausting such rights of appeal, further consideration is necessary, request for further appeal may be made to the State Director and if necessary to the National Director of the Selective Service System. These officers have the power to take appeals to the President.

B. Those junior and senior students who are disqualified physically for commissions are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignment.

C. All junior and senior students in good standing in medical schools, who have not done so, should apply immediately for commission in the Army or the Navy. This commission is in the grade of Second Lieutenant,

Medical Administrative Corps of the Army of the United States, or Ensign H.V. (P) of the United States Navy Reserve, the choice as to Army or Navy being entirely voluntary. Applications for commission in the Army should be made to the Corps Area Surgeon of the Corps Area in which the applicant resides and applications for commission in the Navy should be made to the Commandant of the Naval District in which the applicant resides. Medical R.O.T.C. students should continue as before with a view of obtaining commissions as First Lieutenants, Medical Corps, upon graduation. Students who hold commissions, while the commissions are in force, come under the jurisdiction of the Army and Navy authorities and are not subject to induction under the Selective Service Acts. The Army and Navy authorities will defer calling these officers to active duty until they have completed their medical education and at least 12 months of internship.

II. Recent Graduates

Upon successful completion of the medical college course, every individual holding commission as a Second Lieutenant, Medical Administrative Corps, Army of the United States, should make immediate application to the Adjutant General, United States Army, Washington, D. C., for appointment as First Lieutenant, Medical Corps, Army of the United States. Every individual holding commission as Ensign H.V. (P), U. S. Navy Reserve, should make immediate application to the Commandant of his Naval District for commission as Lieutenant (J.G.) Medical Corps Reserve, U. S. Navy. If appointment is desired in the grade of Lieutenant (J.G.) in the regular Medical Corps of the U. S. Navy, application should be made to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

III. Twelve Months Interns

All interns should apply for a commission as First Lieutenant, Medical Corps, Army of the United States, or as Lieutenant (J.G.), United States Navy or Navy Reserve. Upon completion of twelve months internship, except in rare instances where the necessity of continuation as a member of the staff or as a resident can be defended by the institution, all who are physically fit may be required to enter military service. Those commissioned may then expect to enter military service in their professional capacity as medical officers; those who failed to apply for commission are liable for military service under the Selective Service Acts.

IV. Hospital Staff Members

Interns with more than twelve months of internship, assistant residents, fellows, residents, junior staff members, and staff members under the age of forty-five, fall within the provisions of the Selective Service Acts which provide that all men between the ages of twenty and forty-five are liable for military service. All such men holding Army commissions are subject to call at any time and only *temporary deferment* is possible, upon approval of the application made by the institution to the Adjutant General of the United States Army certifying that the individual is temporarily indispensable. All such men holding Naval Reserve commissions are subject to call at any time at the discretion of the Secretary of the Navy. Temporary deferments may be granted only upon approval of applications made to the Surgeon General of the Navy.

All men in this category who do not hold commissions should enroll with the Procurement and Assignment Service. The Procurement and Assignment Service under the Executive Order of the President is charged with the proper distribution of medical personnel for military, governmental, industrial, and civil agencies of the entire country. All those so enrolled whose services have not been established as essential in their present capacities will be certified as available

to the Army, Navy, governmental, industrial, or civil agencies requiring their services for the duration of the war.

V. All Physicians Under Forty-five

All male physicians in this category are liable for military service and those who do not hold commissions are subject to induction under the Selective Service Acts. In order that their service may be utilized in a professional capacity as medical officers, they should be made available for service when needed. Wherever possible, their present positions in civil life should be filled or provisions made for filling their positions, by those who are (a) over forty-five, (b) physicians under forty-five who are physically disqualified for military service, (c) women physicians, and (d) instructors and those engaged in research who do not possess an M.D. degree whose utilization would make available a physician for military service.

Every physician in this age group will be asked to enroll at an early date with the Procurement and Assignment Service. He will be certified for a position commensurate with his professional training and experience as requisitions are placed with the Procurement and Assignment Service by military, governmental, industrial or civil agencies requiring the assistance of those who must be dislocated for the duration of the national emergency.

VI. All Physicians Over Forty-five

All physicians over forty-five will be asked to enroll with the Procurement and Assignment Service at an early date. Those who are essential in their present capacities will be retained and those who are available for assignment to military, governmental, industrial or civil agencies may be asked by the Procurement and Assignment Service to serve those Agencies.

The maximal age for original appointment in the Army of the United States is fifty-five. The maximal age for original appointment in the Naval Reserve is fifty years of age.

* * *

All inquiries concerning The Procurement and Assignment Service should be sent to The Executive Officer, 5654 Social Security Building, 4th and Independence Avenues, S.W., Washington, D. C., and not to individual members of the Directing Board or of committees thereof.

* * *

EDITOR'S NOTE: The above explicit statement of regulations affecting medical students and physicians, has been prepared by the Procurement and Assignment Service and should serve to answer numerous questions which have arisen the past few months.

In Memoriam

John Hultgren Bong

John Hultgren Bong was born in Stockholm, Sweden, the son of Rev. and Mrs. John Bong, July 25, 1872. After the death of his parents he came to America to live with an aunt at Carlton, Minnesota, where he attended high school. He attended Valparaiso University, Valparaiso, Indiana, the University of Minnesota Medical School for three years, and completed his studies at Hamline Medical School, from which he was graduated in 1897. He practiced in Minneapolis until December, 1898, when he located in Jasper, Minnesota.

In 1899 Dr. Bong married Louise L. Johnson, the local druggist. She was the widow of Dr. M. Johnson, a pioneer physician.

He remained in Jasper until 1907 when he went to Chicago for postgraduate study. He remained in Chicago for two years and then located in Reno, Nevada, where he specialized in the treatment of eye, ear, nose and throat. In 1911 he returned to Jasper and resumed practice, remaining until the time of his death, December 13, 1941.

Dr. Bong was in good health up to one week before his death, at which time he contracted an infection in the arm. He was taken to Ashton Memorial Hospital where he died.

In the medical field Dr. Bong held the position of health officer and served as examiner for many insurance companies. He served as mayor of Jasper for over twenty-five years. He was a member of the Southwestern Minnesota Medical Society, the Minnesota State and American Medical Association. He was a member of many fraternal organizations, among them St. Elmo Masonic lodge where he served as Worthy Master, Triune Chapter, Pipestone Comman-

dary, and Osman Temple of the Shrine at Saint Paul, Minnesota. The Masonic lodge had charge of the services which were held in the High School Auditorium December 19, 1941, with burial at Jasper. Dr. Bong is survived by one son, Dr. J. Norman Bong, a dentist of Minneapolis, and his second wife, Emma, whom he married in 1926. Louise Bong, his first wife, died in 1924.

Stephen B. Haessly

Dr. Stephen B. Haessly of Faribault died at St. Mary's Hospital in Rochester, January 11, 1942, following a six weeks' illness.

Dr. Haessly was born December 25, 1875, at Campbellsport, Wisconsin. He received his medical training at the College of Physicians and Surgeons in Chicago, where he graduated in 1904.

Dr. Haessly began practice at Cannon Falls in 1904 and remained there until 1909 when he moved to Red Wing. In 1912, he became associated with Dr. C. A. Traeger in Faribault in the operation of the Central Clinic. His practice was limited to disease of the eye, ear, nose and throat.

Dr. Haessly was a member of the Board of the Tuberculosis Sanatorium at Mineral Springs and was a past president of the staff of St. Lucas Hospital in Faribault. He had been prominent in medical and civic activities in Faribault for thirty years. In May, 1941, he was elected second vice president of the Minnesota State Medical Association. He was a member of the Rice County Medical Society, the Minnesota State and American Medical Associations.

Dr. Haessly is survived by his widow and two sons, Stuart of Minneapolis, and Burdette, now a lieutenant in service at Fort Lewis.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

Minnesota State Medical Association

George Earl, M.D., Chairman

STATE PROCUREMENT COMMITTEE

DR. W. F. BRAASCH of Rochester has been appointed chairman of the Minnesota Committee which will coöperate with the Procurement and Assignment Service.

The three-fold functions of this committee will be:

1. To secure enrollment of all physicians, beginning with those under 45 who might be available for military service, with the Procurement and Assignment Service.

2. To provide needed information to the Procurement and Assignment Service in regard to qualifications and professional standing of individual physicians in the state.

3. To determine what physicians are rendering services in their present positions which are essential to the public health and welfare and for whom it would be impossible to secure satisfactory substitutes.

Serving on the Committee with Dr. Braasch are the following physicians: Drs. A. N. Collins, Duluth; L. E. Daugherty, Saint Paul; D. A. MacDonald, Minneapolis; G. L. Gosslee, Moorhead; J. A. Thabes, Sr., Brainerd; R. C. Hunt, Fairmont.

PROCUREMENT PROGRAM

Confusion and misunderstanding surrounded early announcements and instructions from the Procurement and Assignment Service.

These misunderstandings have now been ironed out and an integrated military program for all medical men has been worked out in the form of recommendations to all physicians with reference to the national emergency by the board and its executive officer, Major Sam F. Seeley.

Here are the recommendations in abbreviated form:

For Students

1. All students holding letters of acceptance for admission to medical colleges, as well as all

freshmen and sophomores in good standing, should present letters to that effect to local boards of the Selective Service System for classification in Class II-A. If, in spite of the letters, the boards classify them in I-A, they should immediately notify their deans and if necessary appeal, first to the Board of Appeals, then to the state and national directors of Selective Service and, finally, through the regular routine provided for the purpose to the President.

2. All junior and senior students in good standing should apply immediately for commissions in the Army or Navy to the Corps Area Surgeon or to the Commandant of the Navy district in which the applicant resides. They will be commissioned as Second Lieutenants of the Medical Administrative Corps of the Army or as Ensigns in the United States Navy Reserve, according to their own choice. While they hold such commissions they will not be subject to induction under the Selective Service Act, and will be deferred until they have completed their education and twelve months of internship. Medical R.O.T.C. students should continue as before with a view to obtaining commissions as First Lieutenants in the Medical Corps upon graduation. Juniors and seniors who are disqualified physically are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignments.

For Interns

3. Recent graduates and interns who hold commissions as Second Lieutenants should immediately apply to the Adjutant General, United States Army, Washington, D. C., for appointment as First Lieutenants, and Ensigns should apply to the Commandants of their Naval Districts for commissions as Lieutenants in the Navy Medical Corps Reserve or to the Bureau of Medicine and Surgery, Navy Department, Washington, for commissions as Lieutenants in the regular

Medical Corps of the United States Navy. Those who fail to make their applications run the risk of being inducted into service as enlisted men.

4. Interns, residents, fellows and junior staff members up to the age of 45 are subject to call. If they hold commissions only temporary deferment is possible if they can show they are temporarily indispensable. If they do not hold commissions they should enroll at once with the Procurement and Assignment Service which is charged by the president with proper distribution of medical personnel for military, governmental, industrial and civil agencies of the entire country. If they are not established as essential in their present capacities, they will be certified as available to appropriate agencies for the duration of the war.

For Physicians Under Forty-five

5. All male physicians under forty-five are now liable for service and those who do not hold commissions are subject to induction under the Selective Service Act. All will be asked to enroll at an early date with the Procurement and Assignment Service, and there they will be certified for positions commensurate with their professional training and experience and assigned in accordance with requisitions made by military, governmental, industrial or civil agencies. Wherever possible these men should make provisions for filling their present positions by men over forty-five or by men who are physically disqualified for military service or by women physicians, instructors or in some cases, by research workers who do not possess M.D. degrees but who could make available a physician for military service.

6. All physicians over forty-five will be asked to enroll with the Service at an early date. Those who are available may be asked to serve in military, governmental, industrial or civil agencies at a later date.

NOTE: *The form for enrollment with the Procurement Service published by "The Journal of the American Medical Association" to all members last month has been withdrawn. A new form to replace it will be ready shortly for publication and distribution.*

Twenty-one—Thirty-five

It should be understood that the Procurement Service is not likely to be in operation in time to

aid physicians from twenty-one to thirty-five (the original draft ages). These men are now being called for induction under the Selective Service Act as rapidly as possible. All who have not already applied for commissions are likely to be inducted as enlisted men unless their local draft boards are willing to defer them pending an application, after they are called, for commission. Many draft boards refuse to grant deferments for commission unless the applicant has already applied before his number was called.

NOW THERE ARE NINE

The famous four freedoms became nine freedoms in the recommendations recently transmitted by the President to Congress for post-war America. The nine were drawn up by the National Resources and Planning Board, the President said, and among them, as was to be expected, was "the right to adequate food, clothing, shelter and medical care."

As a matter of fact, there is every reason to believe that plans are already formulated in Washington for a full-dress government medical service as an expansion of the Social Security program whenever Congress and the times seem ripe for it.

More Government Participation Likely

In his message on expansion of Social Security the President mentioned hospitalization especially, as an objective to be sought in changing Social Security at this time. Informed officials appear to doubt that Congress will act on this recommendation soon. But the civilian dislocation and hardship — greater probably than anyone foresees now — that will follow in the wake of the acute war emergency will inevitably call for greater and greater government participation in every department of life.

That has been the course of history in other countries and there is little reason to believe that we shall escape it here.

British Plans

In Britain, for example, a commission representing many elements in official life including, of course, the British Medical Association, is even now working on a plan for wartime and post-wartime expansion of their system of panel practice. There is much talk among planners of scrapping the entire system and putting medi-

cine, like the Civil Service, completely under control of the state. The doctors appear to prefer extension of the present system and to fear for patient-physician relationships under a civil service of medicine. But nobody, not even the B.M.A., appears to blench at the thought of State Medicine.

How far the trend will go in America depends, of course, upon how actively American elements opposed to paternalism, fight it and also upon how far the private system can be shown to have failed.

For Free Enterprise

It is ironic, however, that one of the nine freedoms proposed by the National Planning Board should hold a serious threat to free medical service; that this right which appears in the published list as No. 3 should be followed in position No. 5 by the right "to live in a system of free enterprise."

Perhaps the most ironic item of all the nine is the last, which is "the right to rest, recreation and *adventure*." Does the Planning Board envision an Office of Adventure and a young American so bound around by its rights and freedoms and benefits that adventure will be dead and only a wise and benevolent government can be relied upon to provide romance for its young?

Anyway, here they are as quoted in the newspapers:

1. The right to work.
2. The right to fair pay, adequate to command the necessities and amenities of life.
3. The right to adequate food, clothing, shelter and medical care.
4. The right to security, with freedom from fear of old age, want, dependency, sickness, unemployment and accident.
5. The right to live in a system of free enterprise.
6. The right to come and go, to speak or to be silent, free from the spyings of secret political police.
7. The right to equality before the law.
8. The right to education.
9. The right to rest, recreation, and adventure.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Julian F. Dubois, M.D., Secretary

Renville County Mail Carrier Convicted of Criminal Abortion

Re State of Minnesota vs. Fred Wells.

On December 12, 1941, a jury in the District Court of Renville County, Minnesota, returned a verdict of guilty against Fred Wells, sixty-four years of age, the defendant being charged with the crime of abortion. On December 16, 1941, Wells was sentenced by the Honorable Harold Baker, District Judge, to a term of not to exceed two years at hard labor at the State Prison at Stillwater.

Wells, who for more than twenty-five years had been a rural mail carrier, resided at Buffalo Lake, Minnesota. He was arrested on October 13, 1941, following the filing of a complaint against him by Mr. Russell L. Frazee, County Attorney of Renville County. The defendant demanded a preliminary hearing which was held on October 29, 1941, before Justice of the Peace George H. Jacobson at Olivia, Minnesota. At the conclusion of the hearing the defendant was held to the District Court for trial under bond of \$2,000.00. The bond was not furnished and the defendant was remanded to jail. On November 12, 1941, Mr. Frazee filed an information against the defendant charging that on or about January 1, 1940, the defendant performed a criminal abortion on a twenty-four-year-old unmarried girl. The defendant entered a plea of not guilty, and on December 8, 1941, a jury was impanelled and the case proceeded to trial.

Evidence was introduced showing that the defendant, who had no medical education of any kind, attempted to induce a criminal abortion by the use of a small metal can. There was also evidence that the defendant had performed a previous abortion on the same girl at a summer cabin in Stearns County. Before being sentenced, the defendant stated to the Court that he was born at Chippewa Falls, Wisconsin, and had completed the fifth grade in school.

The Minnesota State Board of Medical Examiners wishes to commend Mr. Frazee for the energetic and thorough manner in which he conducted the investigation in this case. These cases are most difficult to try, and the fact that the case was brought to a successful conclusion is a tribute to the able manner in which it was tried by Mr. Frazee.

RESEARCH ON GERM POISONS BRINGS \$1000 AWARD

Studies of the chemical nature of the poisons produced by diphtheria and scarlet fever germs won for Dr. Alwin M. Pappenheimer, Jr., of New York University College of Medicine, the \$1,000 Eli Lilly and Company Research Award in Bacteriology and Immunology, given at the meeting of the Society of American Bacteriologists in Baltimore.

Larger quantities of pure material for making toxoid to protect children against diphtheria is one result of the type of studies Dr. Pappenheimer has made.—*Science News Letter*, January 10, 1942.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

J. L. McLeod, Grand Rapids, Chairman

H. B. Allen, Austin
L. S. Arling, Minneapolis
G. L. Berdez, Duluth

T. G. Clement, Duluth
W. S. Lemon, Rochester
T. A. Lowe, South Saint Paul
R. I. Rizer, Minneapolis

S. E. Sweitzer, Minneapolis
O. H. Wangenstein, Minneapolis
A. E. Wilcox, Minneapolis

PROGRAM FOR MINNESOTA

Several members of our committee attended the Fourth Annual Congress on Industrial Health in Chicago, January 12 to 14, 1942. The meetings developed the seriousness of our situation as a nation at the moment and stressed the vital importance of the work done by medicine in keeping the production lines running at full capacity twenty-four hours per day. The defense situation has made necessary many adjustments and changes in the general attitude of the medical profession, toward the health of the worker. Dr. Sam F. Seeley, Executive Officer, Procurement and Assignment Service, pointed out to us that the emergency is much greater than we in the middle west realize. He stated that the army must and will call for several thousand more doctors in all departments for use in army medical service. The biggest call will be for men between 35 and 45 although men up to 60 will be called as needed. All of us must be ready. No one can assume the attitude that he is indispensable where he is should orders call for him elsewhere in the service of his country.

In addition to the direct army requirements, medicine has the tremendous responsibility of keeping up the health of the workers in all defense projects. The enormity of this problem has not yet been brought home to the general public, because even the medical man who should understand it has not seriously considered his responsibility. Defense activities now include every worker in the nation. Even the farmer is on the defense line.

Your committee has consulted informally with Dr. Giffin, and has arrived at the following conclusions respecting work to be encouraged this year. The following specific ideas will be considered and developed:

1. A thorough study of occupational disease in Minnesota. Each of us is about to receive from the State Board of Health special forms to be filled out on all cases of disease which may be associated with a man's occupation so that we may get definite information as to the nature and extent of this problem in Minnesota. We expect your coöperation in this matter.

2. Our committee will contact and work with other groups which have similar interests. Such groups as the safety council, nurses committees, dental committees, and many others will be approached for the purpose of statewide industrial health promotion.

3. It is increasingly evident that all medical schools must give instructions along industrial health lines. With this thought in mind your committee will give consideration to contacting the University in behalf of a definite course of instruction, covering this new medical responsibility. It has been shown that industry has not been able to find medical men who are trained in industrial practice. To correct this trouble special training must be developed.

J. LAWRENCE MCLEOD

NOTES FROM THE CHICAGO MEETING

Physiologist A. C. Ivy of Northwestern University cautioned against the seven-day week with long hours in our urgent war industries because lowered productivity may be the result. The British have found a fifty-six-hour week for men and a forty-eight-hour week for women gives their maximum output. Longer hours may be harmless if work is not heavy and physical fitness is maintained. Emotional strain, staleness, rest periods, working habits, economic factors, vacations and one day's rest in seven, must all be considered.

* * *

Lack of industrial training opportunities in our medical schools was regarded as serious by a score of men well known in the industrial field. Every recognized medical school with any reasonable material available for industrial teaching was urged to take steps toward correction of this deficiency. (The University of Minnesota is surrounded by industries of 500 or more employes which could readily become the source of clinical material. War demands on personnel may prevent development of these possibilities until after World War II.)

* * *

Health education for industrial workers was discussed by Dr. Everett D. Bristol. He stressed simplicity, clarity in all information presented through articles in newspapers, in motion pictures, payroll inserts, posters, displays and on the radio. Best results are obtained, he said, by direct health instruction to small groups and by repetition.

* * *

Ear plugs made of vaseline and cotton or commercially made plugs are valuable for civilians subjected to bombing raids and for airplane mechanics or pilots, as well as for workers subjected to any other excessive noise. The noise of an airplane motor striking the eardrums can be reduced with vaseline-cotton plugs to the volume of a busy street noise.

Heat sickness was also discussed.*

*A page on prevention and management of heat sickness in an industrial plant will appear here before our hot weather begins.

REPORTS and ANNOUNCEMENTS

MEDICAL BROADCASTS FOR FEBRUARY

The Minnesota State Medical Association broadcasts weekly at 10:45 o'clock every Saturday morning over Station WCCO, Minneapolis, Station WLB, University of Minnesota, and KDAL, Duluth.

Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

February 7—Hemorrhage and Shock

February 14—First Aid in Fractures

February 21—Treatment of Wounds

February 28—Injuries of Jaw and Teeth

AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS

The American Association of Industrial Physicians and Surgeons, and the American Industrial Hygiene Association will hold their joint Annual Convention in Cincinnati from April 13 to 17, 1942. A program is in preparation in which important medical and hygienic problems associated with the present huge task of American industry will be presented and discussed in clinics, lectures, symposia, and scientific exhibits. The central purpose of the meeting will be to provide a five-day institute for the interchange and dissemination of information on new problems as well as for the consideration of up-to-date methods of dealing with those that are well known. The industrial physicians have taken responsibility for the program of the first two and one-half days and the hygienists for the remainder of the five days, but most of the subjects chosen for discussion will be of interest not only to physicians, but equally so to industrial engineers, and executives.

AMERICAN COLLEGE OF SURGEONS

Because of the war, the thirty-second annual Clinical Congress of the American College of Surgeons will be held in Chicago, October 19 to 23, instead of in Los Angeles as originally planned. Headquarters will be at the Stevens Hotel. The twenty-fifth annual Hospital Standardization Conference sponsored by the College will be held simultaneously. The programs of both meetings will be based chiefly on wartime activities as they affect surgeons and hospital personnel in military and civilian service.

LABORATORY WORK

In accordance with the recommendations and agreements of the State Serological Committee (syphilologists and clinical pathologists), a plan for the interlaboratory checking of blood specimens with serodiagnostic tests for syphilis has been adopted. This procedure has been conducted during the past two years and has

proved to be of benefit to participating laboratories in improving the efficiency of such work.

It was agreed that the Division of Preventable Diseases, Minnesota Department of Health, should assist by supplying blood specimens from a carefully selected group of syphilitic donors to those laboratories which do not have available such specimens for testing. It was also agreed that a member of the Laboratory Staff of the Division should visit the laboratories to discuss problems arising in relation to the work and to give advice and assistance as desired. Workers in other laboratories are cordially invited to visit the Division of Preventable Disease Laboratories for the purpose of observation and study of methods used. Blood specimens may be sent by the participating laboratories for checking through special study. Many of the laboratories in the state are taking part in this study. An effort has been made to contact all the laboratories which employ one or more serodiagnostic tests for syphilis in the case of donors or patients or both; however, it is probable that there are some which have not been located.

Further information regarding participation in these studies may be obtained by writing to the Division of Preventable Diseases, Minnesota Department of Health, University Campus, Minneapolis.

—A. J. CHESLEY,
Executive Officer

JOHN W. BELL LECTURE

Dr. William H. Feldman, a member of the Staff of the Institute of Experimental Medicine, of the Mayo Foundation, graduate school, University of Minnesota, will deliver the Eighth Annual John W. Bell Tuberculosis Lecture to the Hennepin County Medical Society on February 2, at 8:00 p.m., in the Medical Society Rooms, Medical Arts Building. The Lecture is sponsored by the Hennepin County Tuberculosis Association. Dr. Feldman's subject will be "Chemotherapy of Experimental Tuberculosis."

Members of the Committee on Arrangements in behalf of the Lecture are: Dr. H. S. Diehl, Chairman of the Committee, Dr. Stephen H. Baxter, ex officio, President of the Hennepin County Tuberculosis Association, Dr. E. J. Huenekens, President of the Hennepin County Medical Society, Dr. F. E. Harrington, and Dr. M. J. Shapiro.

MEDICAL COURSE AT MINNESOTA ACCELERATED

Acceleration of the medical course at the University of Minnesota so that a student will graduate from the Medical School in three calendar years after his admission is one of the several changes adopted by the Medical School with the approval of the Board of Regents.

The acceleration will be accomplished by starting the

next class at the beginning of the summer session and by omitting summer vacations.

Increasing the enrollment in the Freshman Class to 125 is another major change.

These two actions will result in making available to the armed forces an increased number of physicians, and will make them available three to twelve months earlier than if the present schedule were continued. The accelerated curriculum and increased enrollment will be discontinued at the end of the war.

Likewise, the executive faculty has also decided to: Discontinue comprehensive examinations during the war. Under the present system of comprehensive examinations a student who fails to pass them in the spring may take them again in the fall and, if he passes, go on without loss of time. Elimination of vacations would make it necessary for a student who failed in his examinations to wait at least nine months before going on with the work of the next year. For that reason they are being replaced by course examinations.

Install a new Junior-Senior curriculum which spreads the lectures ordinarily concentrated in the Junior year and the clinical work ordinarily concentrated during the Senior year, more evenly over both years. This is intended to be permanent.

PROTEIN SEMINARS AT UNIVERSITY OF MINNESOTA

The Department of Physiology, University of Minnesota Medical School, has organized a series of twenty seminars on the Structure and Behavior of the Proteins. Experts from numerous departments within the University and several from other institutions are leading the discussions.

The increasing importance of knowledge about proteins in the virus, enzyme and blood protein fields has made this seminar series important and well attended by the staff members and graduate students of the University. The meetings are held in Room 15, Medical Sciences Building. The remaining Seminar topics follow:

- February 5—"Double Refraction in Proteins"—Dr. W. Heller
- February 19—"X-Ray Diffraction Studies in Crystalline Proteins"—Dr. L. Fankuchen
- February 26—"X-Ray Diffraction Studies in Virus Proteins"—Dr. L. Fankuchen
- March 5—"Fundamental Studies of Allergens"—Prof. H. A. Abramson of Columbia University, New York City
- March 12—"Virus Protein Studies"—Professor M. H. Roepke
- March 19—"Plant Protein Studies"—Professor R. A. Gortner
- March 26—"Interaction of Proteins in Solution and at Surfaces"—Professor L. S. Moyer

MINNESOTA PATHOLOGICAL SOCIETY

The program for the February meeting of the Minnesota Pathological Society to be held at the University of Minnesota Medical School at 8 p.m., February 17, will include the following papers:

"Genesis of Gastric and Duodenal Ulcer with Experimental and Clinical Studies" by Dr. O. H. Wangenstein, head of the department of surgery.

"Pathologic Changes in the Gastric Mucosa in Association with Gastric and Duodenal Ulcer" by Dr. Robert

Hebbel of the department of pathology.

BLUE EARTH COUNTY MEDICAL SOCIETY

Dr. H. B. Troost of Mankato was elected president of the Blue Earth County Medical Society at its annual business session, December 29, in Mankato. Dr. J. C. Vezina of Mapleton was elected vice president, and Dr. A. G. Liedloff of Mankato was named secretary and treasurer.

UPPER MISSISSIPPI MEDICAL SOCIETY

Meeting in Brainerd, January 10, the Upper Mississippi Medical Society elected Dr. E. G. Hubin of Deerwood president to succeed Dr. J. P. Hawkinson of Crosby.

Other officers named were: Dr. D. H. Garlock, Bemidji, first vice president; Dr. D. L. Johnson, Little Falls, second vice president; Dr. Glen Leemhuis, McGregor, third vice president; and Dr. G. I. Badeaux, Brainerd, secretary-treasurer.

WASECA COUNTY MEDICAL SOCIETY

Members of the Waseca County Medical Society, holding their annual meeting in Waseca, January 6, elected Dr. Clifford Wadd of Janesville president for the ensuing year. He succeeds Dr. R. O. Spittler of New Richland.

Dr. H. M. McIntire of Waseca was elected vice president, and Dr. George Olds, Waseca, was renamed secretary-treasurer.

WINONA COUNTY MEDICAL SOCIETY

Dr. George L. Loomis of Winona is the newly elected president of the Winona County Medical Society, succeeding Dr. H. W. Satterlee of Lewiston.

Other officers elected at the annual meeting of the society, January 5, in Winona are: Dr. H. J. Roemer, vice president; Dr. John A. Tweedy, secretary; and Dr. R. H. Wilson, treasurer.

Dr. H. O. McPheeters of Minneapolis gave a paper on "The Treatment of Varicose Veins and Ulcers."

About forty persons attended the joint dinner of the medical society and auxiliary at the hotel preceding separate meetings of the two groups.

WASHINGTON COUNTY

At the regular monthly meeting January 13, 1942, the scientific program consisted of two colored films on surgery. One was titled Sub-total Gastrectomy for Perforating Duodenal Ulcer, taken at the Lahey Clinic, Boston, and one Vaginal Repair of Cystocele and Rectocele by Dr. Arthur H. Curtis, Northwestern University Medical School. These two films furnished an enjoyable and profitable evening for the members.

The question of vaccination in this county came up for serious consideration. It was decided that every effort should be made to have all the children in the city and rural schools vaccinated and the school boards and teachers were to be approached to give all assist-

WOMAN'S AUXILIARY

ance possible in this matter. Besides that, posters, talks, and articles in the papers will be used as media to further convince the people that now, right now, we are in much need of this protection.

SIXTEENTH ANNUAL MEETING NATIONAL CONFERENCE ON MEDICAL SERVICE*

Sunday, February 15, 1942

Program

Morning Session—9:00 a.m.

Registration

1. THE RELATION OF THE PHYSICIAN TO MILITARY, CIVILIAN AND INDUSTRIAL HEALTH
 - (1) Procurement and Assignment of Physicians for Military Service
SAM F. SEELEY, M.D., Executive Officer, Procurement and Assignment Service, Washington, D. C.
 - (2) Civilian Defense
 - (a) Civilian
 - (b) Hospitals
 - (c) Emergency Medical Squads
GRAHAM L. DAVIS, Hospital Consultant, W. K. Kellogg Foundation, Battle Creek, Michigan
 - (3) Industry's Problem in Maintaining Adequate Medical Care
 - (a) Non-Defense Projects
JOHN R. NILSSON, M.D., Chief Surgeon, Union Pacific Railroad, Omaha, Nebraska (Tentative)
 - (b) National Defense Projects
W. D. NORWOOD, M.D., Medical Director, DuPont Company, Elwood Ordinance Plant, Joliet, Illinois (Tentative)
2. THE ROLE OF THE STATE MEDICAL SOCIETY AND STATE AND CITY DEPARTMENTS OF HEALTH IN NATIONAL DEFENSE
 - (1) State Medical Society
W. P. WHERRY, M.D., President Nebraska State Medical Society, Omaha, Nebraska
 - (2) State Department of Health
W. L. BIERRING, M.D., State Health Officer of Iowa, Des Moines, Iowa (Tentative)
 - (3) City Department of Health
HERMAN N. BUNDESEN, M.D., President, Board of Health, Chicago, Illinois

Dinner—12:15 p.m.

Afternoon Session—1:30 p.m.

3. PRESIDENT'S ADDRESS—HAROLD M. CAMP, M.D., Monmouth, Illinois
4. REPORT OF NOMINATING COMMITTEE; ANNUAL ELECTION OF OFFICERS; SELECTION OF PLACE FOR 1943 MEETING
5. REJECTED SELECTEES AND THEIR REHABILITATION FOR ACTIVE MILITARY SERVICE
 - (1) Local and Induction Board Examinations
SAMUEL J. KOPETZKY, M.D., New York City (Tentative)
 - (2) One Million Rejected; What Per Cent May Be Salvaged:

- (a) By Personal Physician or Dentist Prior to Induction
GEORGE BAEHR, M.D., New York City (Tentative)
J. R. BLAYNEY, D.D.S., Chicago, Illinois
- (b) Following Induction
L. D. REDWAY, M.D., Ossining, New York (Tentative)

6. THE ROLE OF THE MEDICAL, DENTAL, NURSING SCHOOLS AND HOSPITALS IN ANTICIPATING THE ACCELERATION OF TRAINING
 - (1) The Need for a Trained Personnel to Care for the Health of the Military
J. R. DARNALL, M.D., Lt. Colonel, Medical Corps, Washington, D. C.
 - (2) Status of Pre-Medic, Medic and Dental Students, Internships and Residencies During the Emergency
LEONARD ROWNTREE, M.D., Chief, Medical Division, Selective Service System, Washington, D. C. (Tentative)
 - (3) What the Medical, Dental and Nursing Schools May Do to Hasten the Graduation of Their Respective Students
FRED C. ZAPFEE, M.D., Chicago, Illinois (Tentative)

WOMAN'S AUXILIARY

MRS. JOHN J. RYAN, *President*
Saint Paul, Minnesota

MRS. L. R. BOIES, *Publicity Chairman*
Knollwood, Hopkins, Minnesota

OUR ROLE IN DEFENSE

Now that war is a reality, we, no doubt, hear many say—"What can I do for Defense?" And all around us, we see a general scrambling, grasping for something, we know not what, which is very confusing.

Let us pause for a moment and "take stock" so to speak, of our own activities. All or most of us have definite home responsibilities which we cannot and should not ignore. Our Defense begins there.

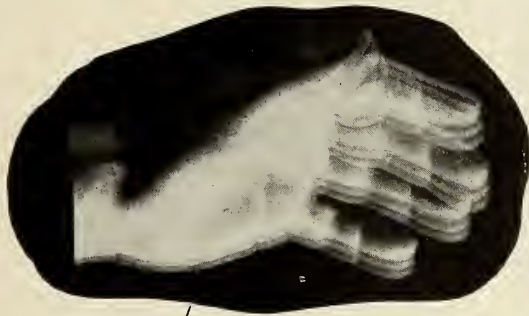
First, let us promote emotional stability and good morale by our positive, "make-the-best-of-it" attitudes.

Restrictions may be inconvenient, but somehow nothing ever becomes too bad, and we still have everything to be thankful for in this great country of ours. Let us be alert regarding instructions given us for emergencies, and coöperate in every way possible, so that we will be prepared.

Food in safeguarding health is as important as it has always been—wholesome, balanced meals mean healthy bodies and beings. Thousands of women are attending Red Cross nutrition classes, learning what to eat, and how to feed people for proper nutrition. Plan simple, nourishing meals for your family. Eliminate wastefulness, and utilize or cut down on leftovers. Speaking of conservation, watching unnecessary lights will reduce your electric bill. You can conserve on heat. Do you take good care of your equipment—in fact, of everything—to make it last longer? We have a fine opportunity to learn a good lesson in thrift today.

Remember, too, your tendency toward hoarding may
(Continued on Page 148)

IN POST-ENCEPHALITIC PARKINSONISM



In post-encephalitic parkinsonism, Bazedrine Sulfate Tablets will often produce marked symptomatic improvement—especially when administered in conjunction with the usual doses of hyoscine, stramonium or atropine.

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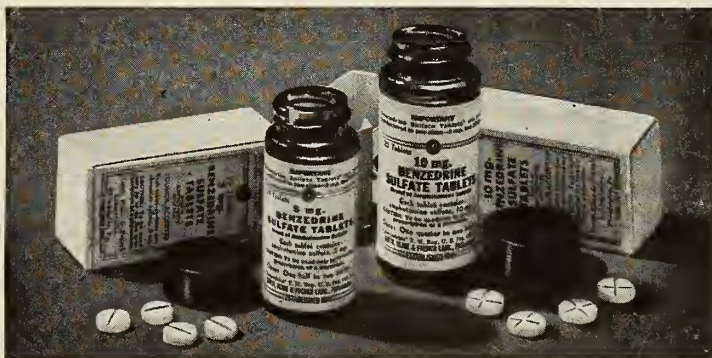
NORMAL DOSAGE: 20 to 40 mg. daily. One-half of the dose at breakfast and the other half at noon. In exceptional cases, larger doses may be necessary.

Bazedrine Sulfate should be used with caution in hypertensive cases and should not be used in coronary disease and other cardiac conditions in which vasoconstrictors are contraindicated. Atropine, stramonium and scopolamine enhance its pressor effect.

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(Continued from Page 146)

bring about more restrictive buying in certain household commodities and, eventually, rationing. Be patriotic by *not hoarding*.

Let us be able to say to ourselves—"I am doing a good job of Defense at home by promoting emotional stability and good morale, preventing wastefulness by conserving and not hoarding, feeding my family properly and simply."

In addition, some of us may still be able to assist in national protection and defense through civic service outside the home.

The task of war can be shortened by your and my cooperation and concentration in concerted action!

COUNTY NEWS

East Central

The East Central Auxiliary met December 4, with Mrs. Gray at Cambridge. Mrs. A. B. Roehlke, Elk River, presided. It was decided to do Red Cross knitting at each meeting. A drive to put *Hygeia* magazine in more schools, offices, and libraries, was to be undertaken. New chairmen appointments were Mrs. W. P. Gardner, Anoka, *Hygeia*, and Mrs. Gordon Tesch, Elk River, Publicity.

Ramsey

The November meeting of Ramsey County Auxiliary was held at the home of Mrs. Phillip C. Roy, 327 Woodlawn. Dr. W. A. O'Brien, University of Minnesota, in his usual genial manner, talked on Nutrition. Mrs. Carol Brink, authoress of several children's books, spoke on that subject. Later, tea was served.

Philanthropic Tea.—It must be said that Ramsey County Auxiliary certainly is foresighted—yes, and very ambitious, to put on their philanthropic project so closely following the holidays.

On Sunday, January 11, a beautiful and well-attended Silver Tea for Philanthropy was held at the home of Dr. and Mrs. Harry B. Zimmermann, 1530 Edgcombe Road, Saint Paul. Seven hundred invitations, to all members of the Ramsey County Medical Society and their wives, were issued. Mrs. Bernard E. O'Reilly was general chairman for the event. Those in charge of invitations were: Mmes. Harold F. Flanagan, Joseph Ryan, A. A. Kugler, H. J. Prendergast. Mmes. Robert Grau and F. W. Lynch were responsible for table arrangements; Mrs. N. P. Bentley for patronesses; the dining room was taken care of by Mmes. Joseph N. Gehlen, G. E. Harmon, R. T. Muller, B. B. Souster, E. R. Steiner, C. R. Tift, Charles W. Wass, and James V. Watson. Hostesses included Mrs. Mark E. Ryan, President of the Auxiliary, Mmes. C. K. Williams, Eugene Scott and C. L. Cain.

The following honored guests and former presidents poured tea: Mmes. H. P. Ritchie, Frank E. Burch, E. C. Eshelby, Edward Schons, A. G. Schulze, E. M. Hammes, Arnold Schwyzer, W. H. Hengstler, W. C. Carroll, E. V. Goltz, Asa M. Johnson, E. H. Bohland, John J. Ryan, A. E. Nichols, George Earl, C. Harry Ghent, and L. G. Dack.

It was a grand success!

Mower

In October, the Mower County Auxiliary met for a 1:30 dessert luncheon. Reports on the State Auxiliary Board meeting held in St. Paul were given by Mmes. C. C. Allen and C. L. Sheedy who had attended. A talk on Nutrition was presented by Mrs. L. G. Flanagan. For the remainder of the afternoon, Red Cross sewing was done.

"Current Medical Legislation" was the subject of the talk given by Mrs. J. G. W. Havens at the November meeting of the Auxiliary at the home of Mrs. James Morrow, 808 So. Kenwood Ave., Austin. This was preceded by dessert luncheon. After the business meeting, the usual Red Cross sewing was done.

Hennepin

The Philanthropic Committee, of which Mrs. F. L. Gilles is chairman, with the help of volunteer auxiliary women must have been super sales people at the annual sale of Glen Lake Sanatorium handwork, at Dayton's in November. The proceeds that are returned to the patients who made the articles netted a record sum. The articles included needlework, carving, embroidered linens and knitted articles. Other members of the committee were: Mmes. F. J. Anderson, K. J. St. Cyr, Harold Leland, K. W. Anderson, Moses Barron, Myron Lysne, E. S. Mariette, Fred Erb.

At the December meeting of the Auxiliary, a Silver Tea was held at the Medical Lounge for Sarahurst, a rehabilitation home for former patients of Glen Lake. Enough money was collected to buy a new chair for the Hennepin County Auxiliary room at the home, and to present five dollar gift certificates, together with some handkerchiefs, to each of the three women occupants. In addition, it was possible to give to each of the five men at the home a crisp one dollar bill.

The program included the reading of "Mother of the Smiths" by the popular Mrs. Roy Jones, and Christmas songs by the Auxiliary Octet.

Tea chairman and hostesses were: Mmes. Carl Laymon, A. E. McDonald, and J. R. Peterson.

The loyalty and enthusiasm of the members of the Auxiliary can certainly not be minimized. For, the day after New Year's, in addition to being a very cold day, eighty-six women attended the January luncheon meeting at 510 Groveland.

Mrs. J. C. Giere, an accomplished pianist, and member of the Auxiliary, presented some beautiful piano selections. Mrs. Viola Thompson, Activities Chairman of the Junior Red Cross, told of her work. Mrs. R. L. Wilder had charge of the luncheon, and Mmes. J. M. Hall and Horace Newhart, acted as hostesses.

The Consumers' Guide, Department of Agriculture publication, says, "You usually have to drink two cups of tomato juice to get as much *vitamin C* as you get from one cup of orange juice. But of course you want to figure costs per cup, too."—*Science News Letter*, January 24, 1942.



BORN of the BLITZ

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CORAMINE*

As London underwent its terrible bombing ordeal of last year, the resuscitating value of CORAMINE, "Ciba" was again dramatically proven. As noted by Charles Hill, Deputy Secretary of the British Medical Association, CORAMINE "is being used more and more for those suffering from heart failure."** First aid posts, mobile units, field and base hospitals are equipped with CORAMINE for speedy stimulation of failing cardiac and respiratory systems.

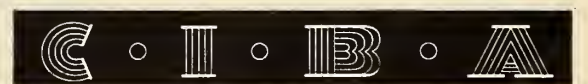
CORAMINE has also been cited for distinguished therapeutic service in accident cases, asphyxia, poisoning, "shock," drowning, pneumonia crises, etc.

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OF GENERAL INTEREST

Dr. Wybren Hiemstra of Minneapolis has been certified by the American Board of Radiology.

* * *

A daughter, Susan Christine, was born to Dr. and Mrs. Edward T. Evans of Minneapolis, December 27.

* * *

Dr. and Mrs. Phillip Hallock of Minneapolis are the parents of a daughter, Jane, born January 8.

* * *

Dr. C. E. Caine is the new mayor of Morris. Prior to assuming the duties of that office last month, he was a city commissioner.

* * *

Dr. Frank J. Hirschboeck, of Duluth, recently was named a member of the state teachers' college board. The appointment was made by Governor Stassen.

* * *

Dr. Elizabeth C. Lowry of Minneapolis has become associated in practice with Dr. Edward Dyer Anderson, with offices at 301 Kenwood Parkway, Minneapolis.

* * *

Honored for outstanding service to Saint Paul's Jewish community, Dr. William Ginsberg of Saint Paul received an award from the Jewish War Veterans Post 162 at a special ceremony, January 13.

Dr. George E. Rogers, medical fellow at the University of Minnesota Hospitals, married Miss Margaret Wheatley in Toronto, January 3.

* * *

Dr. Stanley S. Chunn of Pipestone, first lieutenant, who was assigned to Fort Omaha, Nebraska, has been relieved from active duty with the United States Army Medical Corps.

* * *

Dr. Ancel Keys, director of the laboratory of physiological hygiene at the University of Minnesota, has been appointed special consultant on foods to the Secretary of War.

* * *

Dr. Horace Newhart of Minneapolis attended a meeting of the board of managers of the American Society for the Hard of Hearing in Washington, January 18.

* * *

The marriage of Dr. Ralph V. Platou and Miss Joanne Pierson of Minneapolis took place January 23 in the Hennepin Avenue Methodist Church. Dr. Platou's brother, Dr. Erling S. Platou, was best man. Included among the ushers were Dr. Frederic Becker of Duluth and Dr. Karl E. Sandt of Minneapolis.

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Metrazol Tablets, Oral Solution and Powder for prescription compounding.

COUNCIL ACCEPTED

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DOSE: $1\frac{1}{2}$ to $4\frac{1}{2}$ grains (1 to 3 tablets, or 1 to 3 cc. oral or parenteral solution).

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Pause at the familiar red cooler for ice-cold Coca-Cola. Its life, sparkle and delicious taste will give you the real meaning of refreshment.

In attendance at the sectional meeting of the American Laryngological, Rhinological and Otological Society in St. Louis, January 21, were Dr. L. R. Boies and Dr. Horace Newhart of Minneapolis.

* * *

Major Samuel F. Seeley, who is executive director of the Procurement and Assignment Service with headquarters in Chicago, is a graduate of the University of Minnesota Medical School, Class of '28.

* * *

Dr. and Mrs. Titus Kreuzer of Marshall, together with Dr. and Mrs. C. L. Sheedy of Austin, are spending a month in Mexico City and surrounding points of interest.

* * *

Married in Minneapolis New Year's Day were Dr. Edwin G. Knight of Randall and Miss Naomi Youlton of Minneapolis. Dr. Knight is associated in practice with his father, Dr. Samuel Graham Knight, in Randall.

* * *

In Brainerd, January 10, to address a meeting of the Upper Mississippi Medical Society were Dr. Wesley W. Spink and Dr. Arild E. Hansen of the University of Minnesota Medical School. Their subjects were "Sulfanilamide" and "Rheumatic Fever" respectively.

* * *

Dr. W. Randolph Lovelace II of Rochester has been chosen one of the ten outstanding young men of the nation in 1941 by the National Junior Chamber of Commerce. Selection of Dr. Lovelace was in recognition of his work in the field of aviation medicine.

Dr. L. J. Leonard of Minneapolis recently completed a course in surgery technique, especially relating to the gastro-intestinal tract, given by the Postgraduate School of Cook County Hospital in Chicago. Certificates were given to those completing requirements of the course.

* * *

February 14 is the date set for the marriage of Dr. Harry B. Hall and Miss Betty Jane Smith of Minneapolis. Dr. Hall, a graduate of the University of Minnesota Medical school, recently returned from England where he spent nine months with the American Hospital in Britain, Ltd., at Basingstoke.

* * *

Dr. Leo G. Rigler, head of the department of radiology at the University of Minnesota Medical School, will be among the speakers at the International Postgraduate Assembly of the Southwest to be held at San Antonio, Texas, January 28, 29 and 30. He will present five papers.

* * *

Dr. Hugh O. Brown, formerly of Rochester, is now director of anesthesia at Cook County Hospital. He went to Chicago in May. At Rochester, he was associated with the Mayo Clinic as first assistant in the Section on Anesthesia.

Dr. Brown recently announced residencies in anesthesia at Cook County Hospital for complete training leading to certification by the American Board of Anesthesiology.

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Superintendent & Dietitian—H. B. BROWN, B.S.

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Dr. E. C. Rosenow of Rochester has been elected a Fellow of the New York Academy of Sciences. Election to Fellowship is a distinguished honor, conferred on a limited number of active members, who, in the estimation of the Council, "have done outstanding work toward the advancement of science."

* * *

Dr. Sheldon Harry Stuurmans, who has practiced in Erskine for the past sixteen years, has sold his practice to Dr. John Cameron of Bagley.

Dr. Stuurmans plans to continue his practice of medicine at Long Beach, California, after completing some graduate work at the University of Minnesota.

* * *

Among those attending the meeting of the Academy of Dermatology and Syphilology in New York, December 8-12, were Dr. Henry E. Michelson, Dr. Carl Warren Laymon and Dr. Louie Winer of Minneapolis, Dr. Francis W. Lynch of St. Paul, and Dr. Paul A. O'Leary and Dr. Hamilton Montgomery of Rochester.

* * *

Physicians ordered to active duty with the United States Army Medical Corps within the past few weeks include: Dr. George Harvey, Jr., of Rochester, first lieutenant; Dr. Donald Earnest Otten of Minneapolis, first lieutenant; Dr. Vincent Francis Swanson, Rochester, first lieutenant—all assigned to Corps Area Service Command Induction Station, Fort Snelling.

* * *

At the annual meeting of the active staff of Asbury Hospital in Minneapolis, the following officers were

elected: Dr. H. O. McPheeters, president; Dr. Harlow J. Hanson, first vice president; Dr. H. A. Alexander, second vice president; Dr. A. N. Bessesen, Jr., secretary and treasurer. Dr. H. E. Hoffert was named to the advisory board.

* * *

Dr. William H. Guthrie of Minneapolis has become associated with the Oliver Clinic in Graceville, Minnesota.

Dr. Guthrie was graduated from the University of Kansas and interned at the Kansas City General Hospital. He has been resident physician at Fairview Hospital in Minneapolis for the past year.

* * *

The Division of Preventable Disease of the Minnesota Department of Health requests that all old typhoid and dysentery outfits be returned since, effective January 1, 1942, glycerine preservatives for stool specimens submitted for typhoid examination will be eliminated. In the future only stool specimens and not urine specimens will be examined for typhoid bacilli.

* * *

A special supply of blood plasma for civilian defense use in case of major catastrophies and sabotage accidents will be set up by the University of Minnesota Hospitals, according to plans announced recently.

Between 250 and 500 units of plasma will be stored there, Dr. Owen H. Wangenstein, head of the department of surgery, stated. The blood bank will not be in any way related to the present plasma bank now in use at University Hospitals.

Two Saint Paul lieutenants in the Naval Medical Corps have been approved by President Roosevelt for promotion from lieutenant to lieutenant commander. They are Gordon Ekblad, a graduate of the University of Minnesota Medical School in 1930, and Robert A. Cooper who is assigned to the Naval Hospital, San Diego.

* * *

Dr. Irvine McQuarrie, head of the pediatrics department at the University of Minnesota Medical School, will be in New Orleans, March 2-5, to present three papers to the New Orleans Graduate Medical Assembly. His subjects will be: "The Problems of Edema in Childhood"; "Causes and Management of Convulsive Disorders in Childhood"; and "Diseases of the Adrenal Glands in Children."

* * *

Dr. J. E. Murphy has become associated in practice with Dr. W. W. Yaeger of Marshall. Dr. Murphy received his degree in medicine from the University of Minnesota in 1940, and served his internship at the Minneapolis General Hospital. He is a native of Coleraine.

Dr. Yaeger recently remodeled and enlarged his offices.

* * *

Among those who participated in the tenth annual convention of the American Academy of Orthopaedic Surgeons held in Atlantic City, January 11-15, were: Dr. Wallace H. Cole of Saint Paul, who presented a "Fur-

ther Report on the Kenny Treatment of Infantile Paralysis," and Drs. Ralph K. Ghormley and Markham B. Coventry of Rochester, whose subject was "Surgical Treatment of Painful Hips in Adults."

* * *

As a representative of the speakers' bureau of the Minnesota State Medical Association, Dr. William A. O'Brien addressed students of St. Olaf's College in Northfield, January 15, on the subject, "Drugs, Quacks and Doctors."

Dr. O'Brien also addressed a Twin Cities meeting of Methodist ministers at the Wesley Temple, January 12, on the subject "Medicine and the Ministry."

* * *

Dr. Clara Nigg, bacteriologist, who is credited with discovering an influenza virus which has given scientists a new clue in their search for influenza preventive, is now doing research work at E. R. Squibb & Sons, New Brunswick, New Jersey.

Dr. Nigg did her work on influenza virus in the State Health Department laboratories at the University of Minnesota with funds furnished by the Rockefeller Institute of Medical Research.

* * *

Dr. George T. Ayres and Dr. Owen W. Parker of Ely announce the dissolution of their partnership which was begun July 1, 1908. Dr. Parker is retiring from practice and his interest in the firm of Drs. Ayres & Parker was taken over as of January 1 by Dr. Harry N. Sutherland, a member of the staff since 1913. The

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W-74

You of the medical profession, giving so generously of yourselves in these days of stress, can also enjoy this refreshing sense of a little pick-up from Chewing Gum. And, as you know, the chewing aids digestion and helps promote mouth hygiene.

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new partnership is known as Drs. Ayres & Sutherland, proprietors of Shipman Hospital. Dr. William Rademaker, Detroit Lakes, was recently added to the staff of the hospital.

* * *

A course in emergency surgery was presented at the University of Minnesota Center for Continuation Study, January 19-24.

The faculty included Dr. O. H. Wangensteen, head of the department of surgery at the University Medical School; Dr. Wallace H. Cole, who spent several months in England last year as director of the American Hospital for Britains; Dr. Frederick A. Collier, University of Michigan, and twenty-five associates.

* * *

Dr. Ruth E. Boynton, who served as president of the American Student Health Association during the past year, presided at the annual meeting of the organization in New York, December 30-31. She also gave an address on defense activities as related to student health services. Dr. Boynton retired from the office of president at this session.

Another member of the University of Minnesota Health Service staff who participated in the program was Dr. John J. Boehrer, who presented a paper on "Nutrition Problems Among College Students."

* * *

Attention is called to the national Victory Book Campaign to collect books for the use of soldiers, sailors and marines at their service posts. The army and

navy libraries are popular but require expansion. Fiction, biography, travel, history and informational books of all types are needed. The campaign is on and will continue until the end of April, 1942. Every public library in the country will be used as a collection center and books to be donated may be taken to the libraries. Miss Ruth H. Rosholt, Minneapolis Public Library, is State Director of the Campaign, which is sponsored by the Red Cross, the United Service Organizations and the American Library Association.

* * *

The United States General Hospital No. 26, composed of fifty University of Minnesota physicians, seven dentists and 120 nurses, will be mobilized for active service, February 15, it is announced.

Word of the mobilization was received from the United States Surgeon's General's office by Dr. L. H. Fowler, head surgeon and commander of the unit.

The group, which is to be augmented by 500 enlisted men from the Army, will be sent to Fort Sill, Oklahoma, to undergo a training course of two or three months. After completion of training, the unit is expected to be sent overseas.

Honoring members of the hospital unit, the University of Minnesota will entertain at a farewell dinner, February 10, in Coffman Memorial Union. University faculty members and the general public are invited.

Dr. Joseph Borg, assistant professor of medicine, is in charge of the unit's medical service; Miss Cecelia H. Hauge, in charge of nurses.

Presentation of the Parke-Davis Hospital Day Publicity Cup and Plaque to the Glenwood Community Hospital was an event of December 9.

The plaque was presented at a dinner meeting at Glenwood, which 175 persons attended. Dr. William A. O'Brien of the University of Minnesota Medical School was the guest speaker. Among representatives of organizations who extended congratulations to the Glenwood Hospital were A. M. Calvin, executive secretary of the Minnesota Hospital Service Association; Dr. Walter Gardner, president-elect of the Minnesota Hospital Association; and Victor Anderson, chairman of the Council on Administrative Practice.

Miss Dina Bremness, R.N., is superintendent of the hospital, which won the cup by virtue of staging the best publicity campaign for Hospital Day of any hospital in the United States and Canada in cities of 15,000 people or less. Two such awards were made, one for those in cities over 15,000 and one for those in cities under that size.

* * *

A number of gifts for medical research were recently accepted by the University of Minnesota Board of Regents. They include:

\$7,000 from the Citizens' Aid Society to support research on the problem of gastric ulcer under Dr. O. H. Wengensteen, to be used over a two-year period.

\$4,700 from the National Research Council for research on fat metabolism.

\$2,500 from the National Confectioners Association for use by Dr. Ancel Keys in his study on diet and fatigue.

\$2,000 from the John and Mary R. Markle Foundation, a supplementary grant to support Dr. Albert V. Stoesser's studies regarding water-electrolyte metabolism in intractable asthma.

\$1,200 from the W. H. Barber Co. for the Sivertsen Foundation for Cancer Research.

\$1,000 from an anonymous donor through the Minnesota Medical Foundation to establish a research problem in the division of Internal Medicine.

* * *

The first certificate in the Minnesota Tuberculosis Control Program was presented to Lincoln County, December 11, at a special ceremony held at Tyler.

Dr. B. J. Branton, Willmar, president of the Minnesota State Medical Association, presented the certificate of accreditation signed by Governor Stassen to M. L. Anderson of Canby, chairman of the Lincoln board of county commissioners.

The Tuberculosis Control program is a coöperative campaign of the State Association and the State Department of Health to accredit counties showing a tuberculosis mortality rate not to exceed ten per hundred thousand of population and an incidence of tuberculous infection among seniors in high school not to exceed 15 per cent. The mortality rate must be based on a five-year average and the student rate on tests of at least 80 per cent of the senior students of the county. The program is believed to be the first adopted for tuberculosis control in a human population and is patterned after the federal plan to accredit areas showing eradication of tuberculosis in cattle.

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LIBERAL HOSPITAL EXPENSE COVERAGE	For \$10.00 per year
\$5,000.00 ACCIDENTAL DEATH	For
\$25.00 weekly indemnity, accident and sickness	\$32.00 per year
\$10,000.00 ACCIDENTAL DEATH	For
\$50.00 weekly indemnity, accident and sickness	\$64.00 per year
\$15,000.00 ACCIDENTAL DEATH	For
\$75.00 weekly indemnity, accident and sickness	\$96.00 per year

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

SYMPTOM DIAGNOSIS—Regional and General. By Wallace Mason Yater, A.B., M.D., M.S. (in Med.), F.A.C.P. Professor of Medicine and Director of Department of Medicine, Georgetown University School of Medicine; Physician-in-Chief, Georgetown University Hospital; Physician-in-Chief, Gallinger Municipal Hospital, Washington, D. C.; formerly Fellow in Medicine, Mayo Foundation. Originally written by the late Wilfred M. Barton, A.M., M.D., F.A.C.P., and Dr. Yater. 900 pages. Price, \$10.00. New York: D. Appleton-Century Co., 1942.

NEUROANATOMY. Frank A. Mettler, A.M., M.D., Ph.D. Professor of Anatomy, University of Georgia School of Medicine, Augusta, Georgia. 476 pages. Illus. Price, \$7.50, cloth. St. Louis: C. V. Mosby Co., 1942.

THE BLOOD BANK AND THE TECHNIQUE AND THERAPEUTICS OF TRANSFUSIONS. Robert A. Kilduffe, A.B., A.M., M.D., F.A.C.P. Director Laboratories, Atlantic City Hospital; City Bacteriologist, Atlantic City; Serologist, Municipal Hospital for Contagious Diseases, Atlantic City, etc., and Michael De Bakey, B.S., M.D., M.S., F.A.C.S. Assistant Professor of Surgery, School of Medicine, Tulane University of Louisiana; Visiting Surgeon, Charity Hospital, Touro Infirmary, and Mercy Hospital, New Orleans; Associate in Surgery, The Ochsnor Clinic, New Orleans. 558 pages. Illus. Price, \$7.50, cloth. St. Louis: C. V. Mosby Co., 1942.

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A PRIMER ON THE PREVENTION OF DEFORMITY IN CHILDHOOD. Richard Beverly Raney, B.A., M.D. Associate in Orthopaedic Surgery, Duke University School of Medicine, Durham, N. C., and Attending Orthopaedic Surgeon, Watts Hospital, Durham, N. C. In collaboration with Alfred Rives Shands, Jr., B.A., M.D. Medical Director, Alfred I. du Pont Institute of The Nemours Foundation, Wilmington, Del.; Visiting Professor of Orthopaedic Surgery, University of Pennsylvania School of Medicine, Philadelphia. 188 pages. Illus. Price, \$1.00, cloth. Elyria, Ohio: National Society for Crippled Children, Inc., 1941.

AN INTRODUCTION TO DERMATOLOGY. Richard L. Sutton, and Richard L. Sutton, Jr. 4th ed. \$9.00. 904 Pages. Illus. St. Louis: C. V. Mosby, 1941.

Sutton and Sutton's Introduction to Dermatology is an abbreviation of the larger book, Diseases of the Skin by the same authors. It is now presented in the fourth edition since 1932. This so-called introduction mentions almost every disease of the skin described in medical literature. Many diseases, particularly the more common ones, are well described. However, discussions of some of the less common diseases are so short and inadequate that one would have difficulty recognizing the disease from the description. The avowed purpose of the book might have been as well served by omission of consideration of these rare dermatoses.

Any classification of diseases of the skin is necessarily confused. However, it seems unnecessary, according to the present concept of the seborrheal dermatoses, to consider seborrhea and seborrheal dermatoses under

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separate headings in different parts of the book. The subject of pemphigus might have been better handled. The discussion of the classification of lichen chronicus simplex is clear and helpful.

In discussing treatment of the various dermatoses the authors list almost every type of therapy, including the new developments such as the sulfonamide compounds. While this is common practice in texts on dermatology, it leaves the uninitiated with no clear idea of where to start in handling a given case. The authors continue to expound at length on the treatment of acne and seborrhea by reducing the fat intake and by the administration of thyroid, forms of therapy which have not been found successful by the majority of practitioners.

There are numerous good illustrations taken from the Suttons' book, *Diseases of the Skin*. No colored plates are included.

LAWRENCE M. NELSON, M.D.

COMMUNICABLE DISEASE CONTROL: A Volume for the Health Officer and Public Health Nurse. Gaylord W. Anderson, A.B., M.D., Professor and Head of the Department of Preventive Medicine and Public Health, University of Minnesota; Formerly Deputy Commissioner and Director of the Division of Communicable Diseases, Massachusetts Department of Public Health; and Margaret G. Arnstein, R.N., M.A., M.P.H., District Supervising Nurse, New York State Department of Health; Formerly Associate Professor of Preventive Medicine and Public Health and Director of the Course in Public Health Nursing, University of Minnesota. New York: The Macmillan Company, 1941. 434 pages. Price, \$4.25, cloth.

The older philosophy that in order to be effective the pill must be bitter, has been carried over into the compounding of all too many medical treatises. Accordingly, the yearning for a text which at one and the same time is comprehensive but not meticulous, precise though not pedantic, systematic as a log table yet, withal, readable as a novel, has prompted many to reflect, "Some day, I'm going to write a book!" Here is such a book, within the field of communicable disease control, well worth the reading time of any physician or nurse. For the health officer, in full or part time work, this textbook will prove delightfully useful. The authors modestly state, "An attempt has been made to

evaluate the various control measures as to their relative effectiveness and to outline programs that will yield the greatest return in terms of necessary expenditure." The "attempt" has succeeded.

MARIO FISCHER, M.D.

SYNOPSIS OF APPLIED PATHOLOGICAL CHEMISTRY. Jerome E. Andes, M.S., Ph.D., M.D., F.A.C.P., and A. G. Eaton, B.S., M.A., Ph.D., 427 pages. Illus. Price, \$4.00, cloth. St. Louis: C. V. Mosby Co., 1941.

This book might best be described as a five-minute source of abbreviated information on nearly all pathological chemistry having some practical value in clinical medicine. It would find its best application as a quick reference source for a busy physician who can make good use of the hospital chemical laboratory.

There are a few procedures of practical importance which might well have been included such as the recent work on laboratory manifestations of shock and hemorrhage. Occasional errors in judgment of value of work in the literature such as a reference to low serum calcium as being the cause of a hemorrhagic dyscrasia and the omission of the important theory of lowered blood volume as an explanation of extrarenal azotemia are noted. A frank error is made in the statement that low blood uric acid values eliminate the possibility of gout. Nevertheless the book fills a needed place in the library of physicians who have the ability to combine clinical observations and interpretations of accurate measurements of physiological processes to arrive at a diagnosis.

ARTHUR H. WELLS.

TYPHOID DEATHS OF SEVENTY-EIGHT CITIES LOWEST SINCE 1910

Typhoid death reported in 1940 of 78 U. S. cities surveyed since 1910 were only 172, the lowest number on record. So reports the *Journal, American Medical Association* (January 17) on the basis of the 1940 census plus information from city health officers.

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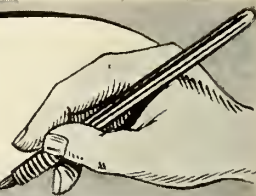
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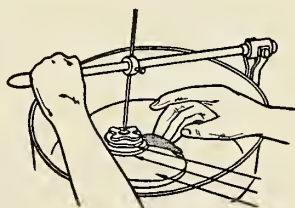
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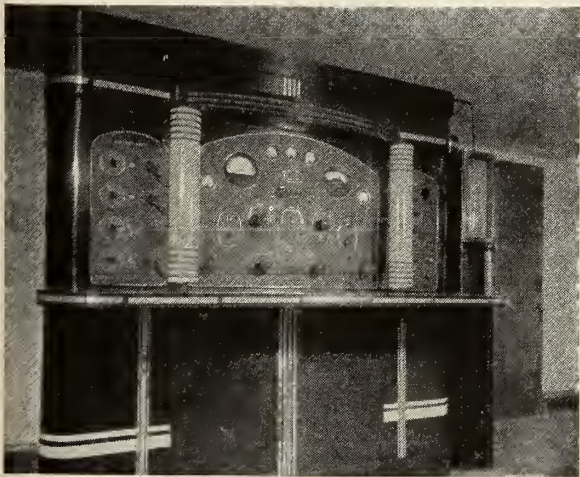
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-
- (1) 1936. Food Research 1, 3
 1936. Ibid 1, 231
 1938. Nutrition Abstracts and Reviews 8, 281
 1939. The Canned Food Reference Manual,
 American Can Co., New York.
 1940. J. Am. Diet. Assoc. 16, 891



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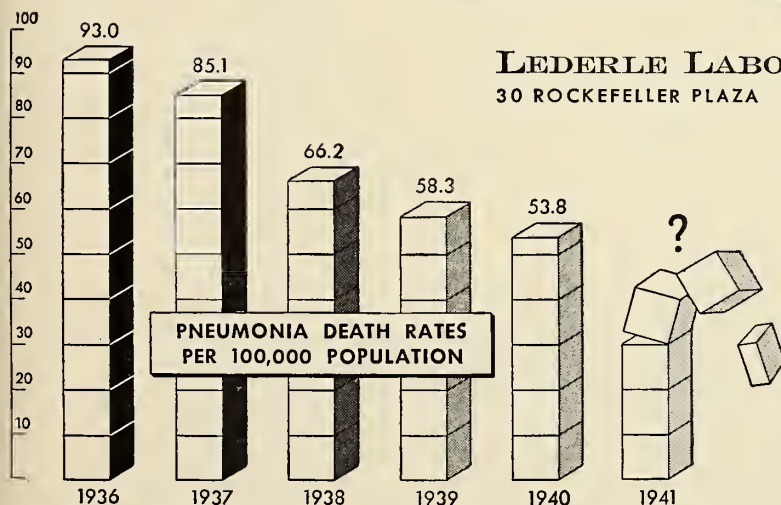
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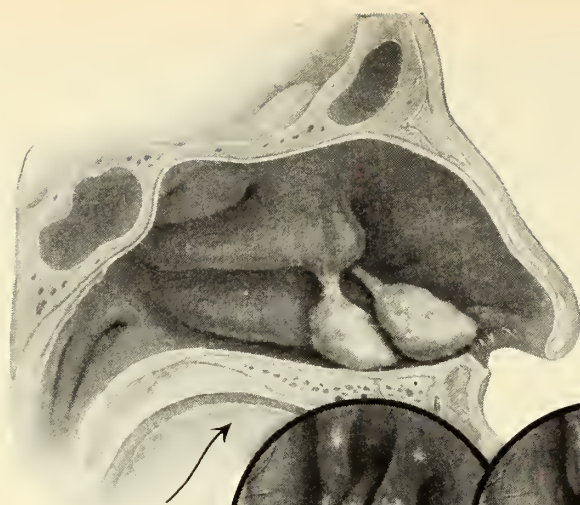


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UNDULANT FEVER

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UNDULANT fever is also known as Malta fever, Gibraltar, Mediterranean, Neopolitan, Cyprus, or Danube fever, Bruce's septicemia, goat fever, slow fever, and mountain fever.

It is stated that this disease was recognized by Hippocrates. Under the name of remittent malarial fever, it is said to have been described by Burnett in 1914. Until recent years undulant fever was unrecognized outside of the Island of Malta and the countries bordering upon the Mediterranean Sea.

The cause of undulant fever was discovered in 1887 by Bruce, a British army officer, stationed on the Island of Malta, and for whom the organism, a small coccobacillus, *Brucella melitensis*, has been named. In 1897 Wright and Semple brought into use the agglutination method of diagnosis. This method has since proved a valuable aid to the diagnosis of undulant fever. In 1904-1907, a British Commission, headed by Bruce, found the goat of Malta to be a "natural reservoir" of infection.

In 1905, Craig, a U. S. Army Officer, recorded the first human case recognized as originating in the United States. The patient, a nurse, in Washington, D. C., had had no association with goats. Similar reports were later made in France, England, Egypt, and elsewhere, diagnosis being confirmed by the agglutination test.

In Arizona and Texas numerous brucella infections have been reported in goat herds and in consumers of goats' milk since 1911, and in 1922 in Arizona there was an epidemic of 83 cases among consumers of goats' milk.

In 1918 Evans found the organisms of contagious abortion in cattle and hogs to be indistin-

guishable culturally from *Brucella melitensis* from goats, shown by Bruce to be the cause of undulant or Malta fever in man.

In 1924 Keefer reported in Baltimore the first human case of undulant fever proved to be due to the organism causing contagious abortion in cattle.

In 1926 Carpenter reported five cases of undulant fever in which *Brucella melitensis*, abortus type, was found. Two of these patients had been consuming cows' milk which was shown to be infected with the contagious abortion organism, i.e., *Brucella melitensis*, abortus type. Since 1926, human cases traceable to the abortus type of *Brucella melitensis* have been reported from a large number of states throughout the country. Bruce defined Malta fever as "a disease of long duration, characterized clinically by continued fever, profuse perspiration, constipation, frequent relapses, rheumatic or neuralgic pains, swelling of joints, or orchitis; bacteriologically by the presence in the blood of organisms of *Micrococcus melitensis* [now *Brucella melitensis*]; anatomically by congestion of the spleen and other organs."

The disease, a bacteremia or septicemia with an incubation period of two weeks or less, may present varying clinical pictures. The undulating character of the fever, when present, is often striking, but some cases present only prolonged fever with marked irregularities. The illness may be acute, subacute, or chronic. Ambulant cases frequently occur. There is abundant evidence that infection may take place without producing noticeable symptoms. The symptoms vary widely in severity and duration; the joints and the nervous system are frequently affected; the blood often shows moderate anemia with leukopenia and fre-

President's address at the seventy-third annual meeting of the Wabasha County Medical Society, Wabasha, Minnesota, October 21, 1941.

quently an increase in the number of mononuclear leukocytes. The disease is rarely fatal. Recurrences are frequent and the disease may be continuously or intermittently present over a period of months and, in some instances, years.

In the four cases which I wish to present, practically all of the symptoms mentioned were present to some degree in one or the other of the patients. In the first case, seen on May 19, 1938, the presenting complaints were weakness, pain in the back, headache, pain in the eyes, loss of appetite, and chills. The symptoms were first noted three weeks before and upon consulting a physician at that time he was told he had "the flu and was nervous." After this the symptoms abated gradually only to recur two weeks later. The first symptom noted was headache and a severe pain in the eyes, especially when he moved them from side to side. He felt best as a rule in the morning but as the day wore on, the fever, chills, and sweating became more prominent until it reached its climax at bedtime. He could work only for short periods at a time because of weakness and he had a marked loss of appetite.

Clinically the man appeared normal except for his apprehension. He had a temperature of 102.4 degrees; his pulse rate was 92 per minute. The leukocyte count was 7,950 with about 56 per cent lymphocytes. The tuberculin test was negative. His blood serum agglutinated the antigen used by a local veterinarian in testing for Bang's disease in cattle in a dilution of 1:200. According to the State Board of Health the agglutination titer was 1:640.

In the second case the presenting complaints were weakness, fever, chills, excessive sweating, and loss of appetite. Here, too, the fever and chills came on toward evening with marked sweating at night, the symptoms having been present for about three weeks. He had not paid much attention to the symptoms because he felt pretty well otherwise. He had no aches or pains. However on the day of examination, March 25, 1939, he became so weak he had to go to bed. He also suffered a complete loss of appetite the same day.

Clinically he too appeared normal. He had a temperature of 102.6 degrees. His hemoglobin test was 80 per cent. The tuberculin test was negative. His agglutination titer using the same Bang's antigen was 1:400. According to the State Board of Health, it was 1:160.

The third patient, seen January 29, 1940, complained of weakness, fever, and lack of appetite. He went on to explain how he had had "flu" three weeks previously and had never really recovered. He was too weak to do his work and he had a very poor appetite.

Clinically this man too did not appear particularly ill and there were no abnormal findings. He had a temperature of 100 degrees and a pulse rate of 88 beats per minute. A tuberculin test was done. Two days later when seen at his home he had a painful right wrist and heel and a painful, slightly swollen left testicle. His temperature at this time was 103 degrees, the leukocyte count was 9,850. The tuberculin test was negative. Urinalysis revealed nothing unusual. His agglutination titer for *Brucella melitensis* according to the State Board of Health was 1:1280.

The fourth patient, seen on August 25, 1941, gave as his presenting complaints headache, fever, chilly sensations, and slight loss of appetite. For two weeks he had had the above symptoms. The headaches seemed associated with a stiff and painful neck. He thought he had a fever at times, especially in the afternoons and evenings. He stated that he became chilled easily on cool evenings. He worked hard all the time during threshing season but he felt more like lying down than working. However, he was not sick enough to go to bed. His appetite was not as good as usual and he thought he had lost a little weight.

This man was rather nervous and apprehensive but aside from that no unusual clinical signs were found. He weighed 157 pounds, which was about seven pounds less than his usual weight. His temperature was 99.2 degrees and his pulse 76 beats per minute. His blood pressure was 130 systolic and 84 diastolic. His hemoglobin was 86 per cent; his leukocyte count 7,100. The tuberculin test was negative. A sedimentation test showed a rate of 4 mm. the first half hour, 18 mm. in one hour, 38 mm. in 1.5 hours, and 51 mm. in two hours. The agglutination titer to *Brucella melitensis* according to the State Board of Health was 1:320.

The enlarged spleen mentioned as common in this disease was found in none of these cases, no doubt largely because I recall rarely ever having been able to palpate an enlarged spleen in any disease.

In Minnesota, 1,023 cases of undulant fever were reported from March 11, 1927, to January

1, 1941. In addition, one case was reported in a transient and sixty-four in nonresidents.

Of these 1,023 cases, 798 were in males with seventeen deaths, and 225 were in females with six deaths. This indicates a death rate of approximately 2 per cent. The greatest number of cases—more than half—occurred between the ages of twenty-five and forty-five years. Incidentally, the ages of my cases were thirty-three, twenty-eight, thirty-five, and thirty-nine years respectively. They were all males and farmers. Of the total cases in Minnesota during this time about a quarter were farmers, another quarter were housewives, domestics, and packing plant employes. The remaining half were of a large variety of occupations.

The first patient I mentioned began to drink a considerable amount of milk about three months before becoming ill, because he thought it would be good for him. Upon testing his herd he found that four of his milk cows were infected. The second patient had always consumed large amounts of raw milk. When he tested his herd, he found sixteen milk cows and two heifers infected.

The last two patients both had handled Bang's-infected material. One had handled material about two months before his first noticeable symptoms. While it was found that he had a clean herd himself, he had helped his neighbor "clean" three cows that had aborted. When the neighbor tested, he found nine reactors. As a result of this test eleven other farmers in the immediate vicinity tested but fortunately no other positive reactors were found. The last case, under treatment at the present time, had "cleaned" one of his own cows two weeks before he became ill. He has not tested his cattle to date but no doubt he will find reactors because he has had trouble with abortion in his herd.

It is interesting to note that of the total cases reported, 658 gave raw milk as the probable source of infection, although 198 of these were farmers and had also handled abortion material. Ninety-one gave handling of abortion material as the source of infection and 177 had handled meat in packing plants. The remainder gave various sources of infection.

Various forms of vaccines, chemicals, and fever therapy have been tried in the treatment of this disease at first with indefinite results, but more recently with definite beneficial effects. Dr.

L. E. Prickman of the Mayo Clinic has been treating cases of undulant fever with artificial fever therapy and in 1938 he stated approximately 80 per cent of the patients were relieved. At present he is continuing with the same form of treatment and has had the same fine results with some forty or more cases. He gives from one to three treatments with a temperature of 105 to 107 degrees, each treatment lasting from four to five hours.

In recent years, sulfanilamide has been used with varying degrees of success. Welch, Wentworth, and Mickle of Hartford, Connecticut, in 1938 reported sulfanilamide "a valuable therapeutic aid in treatment of this disease," based on an experience of five cases. They also used sulfanilamide diagnostically because it increased the cytophagic activity of the blood for brucella organisms.

Blumgart of Boston the same year reported rapid recovery of one case and recommended its further trial. He also listed similar experiences of others who had tried this type of treatment. He included one report by Groues in which he had used successfully sulfanilamide in combination with vaccine in eight cases.

Drs. Trout and Logan of Chicago and Oak Park, Illinois, reported "prompt and apparently permanent cures in two cases with brucellosis," this too in 1938. However, Carey of Detroit reported in 1940 no apparent benefits in three pediatrics cases using the drug.

In my own experience, sulfanilamide was used in three cases in doses ranging from 75 to 25 grains a day. In all three instances the temperature returned to normal and the patients felt much improved within four or five days of the onset of treatment. In addition to the sulfanilamide, I used Lederles *Brucella melitensis* vaccine containing 2,000,000 heat-killed organisms per c.c. My theory in using the vaccine is that in a disease which has a tendency toward chronicity and recurrences, it is desirable to increase the resistance of the patient to the causative organism as much as possible. Certainly this can do no harm and may give the patient a more lasting protection than the use of the drug alone.

I understand that Dr. Harris of New York, who lives in a community where there is a great deal of brucellosis, and has had a very wide experience with the disease, recently has published

a book on "Brucellosis." In it he is very enthusiastic about vaccine therapy, using the heat-killed organisms, and preferring this form of treatment above all others.

I give the vaccine in doses starting with 0.25 c.c. every three or four days, gradually increasing the amount until 1 c.c. is given. This amount is continued until about 10 c.c. have been used. There is usually some local and general reaction with the first few doses, lasting for about a day. My first patient, treated in 1938, was given this vaccine alone. His recovery was prolonged somewhat, although his temperature remained normal after seven days until about one month after treatment was begun, when he had fever reactions following the last two injections. These were discontinued and he made a complete and uneventful recovery.

There have been no recurrences in any of these cases, although one is still under treatment at the present time. He is feeling fine and doing more of his work all the time. His weight has returned to 160 pounds, which is his usual weight. His sedimentation test now shows 4 mm. the first half hour; 15 mm. the second; 26 mm. the third; and 38 mm. the fourth. He is still taking the vaccine treatment and this may account for the sedimentation test not having returned to normal. Incidentally this patient is the only one of the four who had a positive blood culture for the organisms. In this case the blood was taken for culture during a fever reaction and before starting treatment. These conditions were not met in any of the other cases.

There are two things essential in the control of this disease. The first has to do with the care of the herd and is the farmer's responsibility. Bang's abortion disease in cattle results in serious financial losses to dairymen and breeders through loss of calves, sterility of cows, and consequent lessened milk production. Therefore, intelligent breeders and dairymen in increasing numbers are seeking to free their herds of contagious abortion.

In Olmsted county since 1927 there have been ten cases of undulant fever reported. Up until 1939 only 27.6 per cent of herds were Bang's tested. In Winona County there have been fourteen cases reported since 1927. Three of these were cases presented tonight occurring in White-water township. Until 1939 29.9 per cent of herds had been tested for Bang's disease. In Wabasha County, there were twelve cases reported,

the case reported tonight from Elgin township not included. In our county only 23.2 per cent of the herds had been Bang's tested up to 1939.

The State Livestock Sanitary Board offers co-operation to dairy farmers and breeders. Plans making it possible to have abortion-free herds may be obtained by writing directly to the State Live Stock Sanitary Board, State Office Building, Saint Paul.

The second essential in the control of this disease has to do with milk and is the responsibility of the consumer. The organisms which cause undulant fever in human beings and contagious abortion in cattle, hogs, and goats, are readily killed by heat. Through the pasteurization of goats' milk, undulant fever was reduced in Malta from 643 cases in 1905 to one case in 1910. Through the pasteurization or boiling of cows' milk, all danger of human infection from this source is eliminated. Therefore, if the milk does not come from an accredited herd, the consumer must insist on pasteurization or boil his milk.

Conclusion

1. A brief history of the origin and distribution of undulant fever has been given with particular emphasis upon Minnesota and our own and adjacent counties.

2. The symptoms and characteristics of the disease have been described in brief.

3. Four personally observed and treated cases were reported with cures and no recurrences to date.

4. Of the various forms of treatment advocated for this disease, artificial fever therapy, and sulfanilamide plus vaccine therapy seem to offer the most consistently favorable results.

5. Two things essential in the control of the disease are Bang's testing of all cattle, and pasteurization or boiling of all milk.

6. I wish to acknowledge the help and co-operation of Dr. L. E. Prickman of the Mayo Clinic, and the Minnesota Department of Health in supplying material and references for this paper.

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MARKED RETRUSION OF THE MANDIBLE

GORDON B. NEW, M.D., and JOHN B. ERICH, M.D.

Rochester, Minnesota

IT is not possible to arrive at a satisfactory and comprehensive notion of the therapeutic problems that arise in the care of patients with severe mandibular retrusion without first reviewing the methods which have been advocated for the treatment of such deformities. Briefly, in accordance with the degree of retrusion, these defects may be divided into three groups: (1) minor defects in which the recession of the lower jaw is entirely the result of dental malocclusion and which, when they occur among young individuals, may be cured by orthodontic measures; (2) similar defects occurring among patients too old for orthodontic treatment, and also defects of a more advanced nature; and (3) very extreme cases of mandibular retrusion in which the lower jaw is so greatly underdeveloped and displaced so far posteriorly that no type of osteotomy could begin to lengthen or advance the mental portion sufficiently. Defects in the first two groups may be corrected by means of one or a combination of the following methods: (a) various types of osteotomy through the horizontal or ascending rami to lengthen or advance the mandible; (b) cartilage implants inserted behind the head of the condyles for advancement of the mandible; (c) cartilage or bone implants for building up the chin to normal contour. In defects in the third group, cartilage or bone implants for building up the chin to normal contour are of no value as it would be impossible to insert a large enough graft to bring the chin forward into the desired position. In fact, none of the methods of treatment which have been mentioned are applicable here, and, consequently, in presenting a case of marked mandibular retrusion in this paper, it is therapeutic management that we wish to discuss in detail.

The etiologic factors which contribute to a severe mandibular retrusion are osteomyelitis, temporomandibular ankylosis, unreduced fractures of the lower jaw, particularly bilateral subcondylar fractures, and birth injuries. In order to produce extreme mandibular retrusion, these causative factors must occur during the growing period of the individual when the jaws are under-

going a series of changes in development. Not until the patient has reached full maturity, at which time the physiologic processes involved in the development of teeth and bone have been completed, does such a defect reach its final stages. In short, the earlier in life at which an injury occurs to initiate retrusion of the mandible, the more pronounced is the ultimate deformity. Since a retruded mandible is a deformity of progressive severity during the developmental period of the jaws, the sooner treatment can be instituted, the more satisfactory will be the final result.

Severe retrusion of the mandible is characterized by a posterior displacement of the entire lower jaw to such a degree that the lower anterior teeth are often situated as far back as the upper first molar region. Under such circumstances, there is little or no occlusion of teeth, and mastication of food is almost impossible. Frequently, the lower teeth possess a forward inclination, and if the defect has occurred before the upper anterior teeth are fully erupted (an age at which the upper lip is not fully developed), there is a tendency for the upper anterior teeth to protrude also. The deformity is conspicuous externally because of an extreme degree of retrusion of the chin; this may be associated with shortening of the upper lip, asymmetry of the nasolabial sulci, or other marks of facial disharmony.

In the treatment of a markedly retruded mandible, it is our opinion that the most satisfactory results can be obtained by the use of an intra-oral prosthetic appliance for restoration of normal contour of the chin and for establishment of adequate dental occlusion. This procedure has been used by some plastic surgeons both in this country and in England. In the employment of such a prosthetic appliance, it is necessary to bring the lower lip and soft tissues of the chin forward by incising the mucosal attachment of the lower lip to the anterior part of the mandible. Such an incision leaves a large, raw pocket. Before a prosthetic appliance can be inserted into such a pocket, the latter must be lined with skin to prevent subsequent contractures and distortion

From the Section on Laryngology, Oral and Plastic Surgery, Mayo Clinic, Rochester, Minnesota.

of the soft tissues of the chin and lower lip. It is also important that this pocket be extended down around the lower border of the mandible to create an undercut which will aid in the retention of the prosthesis. Since immobilization

ment of the compound-covered frame to the casting a cake of modeling compound is softened in hot water and packed down around the frame into the pocket. When hard, the compound and frame are securely united and together form a

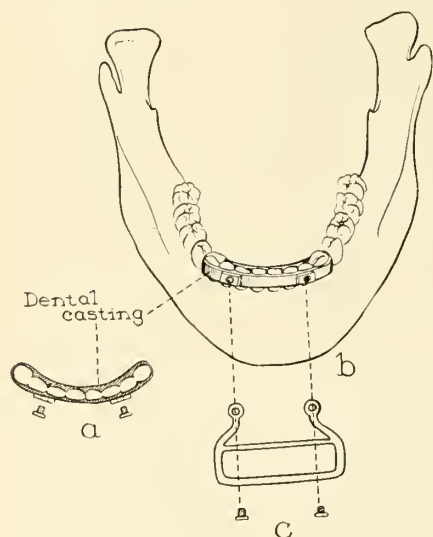


Fig. 1. Appliance for fixation of a skin graft used in lining a pocket between the lower lip and alveolar process for reception of a prosthetic appliance; a, cast silver dental splint as seen from above; b, casting cemented to lower anterior teeth; c, wire frame for holding dental modeling compound around which the skin graft is wrapped; two small screws which anchor the wire frame to the casting also are shown.

is one of the most important factors in successful skin grafting, the problem in lining an intra-oral cavity with a skin graft lies in the difficulty of obtaining adequate fixation of the part during the healing period. We have developed the following technic for maintaining absolute fixation: As a preliminary measure, a silver cast dental splint, which is cemented to the lower teeth, is required (Fig. 1). On the anterior aspect of this casting are two threaded holes into which steel screws may be turned (Fig. 1). A wire frame, which can be securely fastened by the screws to the casting is also constructed (Fig. 1). Following the preparation of the pocket between the lower lip and alveolar process, the wire frame is fixed to the casting and adjusted so as to lie in the center of the wound. It is then removed and coated with a thin layer of dental modeling compound which has been melted in a flame. This compound, softened in this manner, will adhere perfectly to the frame, whereas the compound softened in hot water will not. After re-attach-

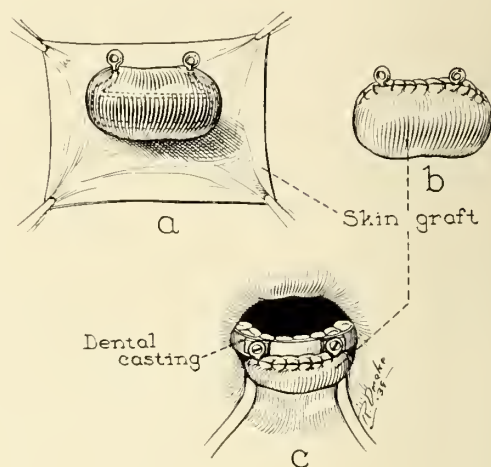


Fig. 2. Application of skin graft to dental appliance; a, after packing dental modeling compound around the wire frame (Fig. 1c) and into the intra-oral pocket so as to form a stent for the cavity, a Thiersch skin graft from the inner aspect of the thigh is wrapped about the stent which previously has been coated with rubber cement or mastisol; b, the skin graft is sutured over the upper surface of the stent; c, the stent, covered with the skin graft, is inserted into the intra-oral pocket; this method gives perfect fixation of the graft during the healing period.

ment of the compound-covered frame to the casting a cake of modeling compound is softened in hot water and packed down around the frame into the pocket. When hard, the compound and frame are securely united and together form a stent that is perfectly adapted to all the irregularities of the pocket. On removal from the mouth, the stent is coated with rubber cement or mastisol (a solution of mastic in benzene). A thin Thiersch skin graft (from the inner surface of the thigh), which is cut preliminary to the intra-oral operation, is wrapped about the stent and sutured along its upper surface (Fig. 2). The stent covered with skin graft is then inserted into the pocket and is screwed to the dental casting (Fig. 2). Adhesive plaster applied externally firmly fixes the lower lip to the stent, which is immovable. With the elapse of ten days, the stent may be removed and the pocket will be found to be lined perfectly with skin.

After the intra-oral pocket has been successfully lined with skin, the prosthetic appliance is constructed. This possesses artificial teeth which articulate with the upper teeth, hide the malposed lower teeth and establish a similarity to natural dental occlusion. It is essential that the appliance, which is rather bulky, be hollowed out to reduce its weight. If there are one or more lower posterior teeth on either side of the mandi-

ble, it is well to retain such teeth, even though badly decayed, for fixation, the prosthetic appliance being attached to these teeth by dental clasps. Due to the continuous stress and strain of this appliance, the lower teeth gradually be-

situated as far back as the upper first molar region. This defect was associated with a short, underdeveloped upper lip and extreme protrusion of the upper anterior teeth, which was to be expected in view of the fact that the deformity began at the age of five years. If the etiologic factors which had contributed to this



Fig. 3. Appearance of patient when first observed at the clinic.



Fig. 4. Appearance of patient after correction of the deformity.

come loosened, and eventually must be extracted. However, if they can be retained for a few months until the tendency for the skin-lined pocket to undergo contraction has been overcome, the appliance can then be successfully worn without the use of clasps. For a few days after the appliance has first been inserted, the lower lip, which is stretched and tense, has a tendency to contract downward. To counteract this retraction, adhesive tape must be used to hold the lower lip up in the desired position. As a matter of fact, a period of about six months is required for the muscles of the lower lip to develop sufficiently to maintain the lower lip in a natural position but, after this time has elapsed, the end result is most gratifying from an esthetic point of view.

Report of Case

A woman, aged twenty-nine years, came to the clinic because of a facial deformity in which the lower jaw was markedly retruded (Fig. 3). At the age of five years she had had a dental abscess which had resulted in an extensive osteomyelitis of the mandible. On examination it was found that the chin was practically absent and that the lower jaw was displaced posteriorly to such an extent that the lower anterior teeth were

mandibular retrusion had not occurred until the patient were twelve or thirteen years of age, the upper lip would have been better developed and there would have been much less malposition of the upper dental arch.

The marked protrusion of the upper anterior teeth and alveolar process was considered as much a part of the facial deformity as was the retruded mandible. Consequently, at the time of the plastic operation, all of her upper teeth, which were badly carious, and much of the anterior portion of the upper alveolar process were removed. In addition, the decayed lower teeth were also extracted with the exception of two lower molars that were retained for retention of the prosthetic appliance. A pocket was prepared between the lower lip and jaw and lined with a Thiersch skin graft as has been described. Then a full upper denture and a prosthetic appliance were prepared. This was clasped to the two lower molar teeth fitted into the skin-lined pocket. Both plate and prosthesis were made with artificial teeth which met in normal occlusion. The ultimate result effected by these surgical and mechanical procedures was most satisfactory both esthetically and functionally (Fig. 4). Not only interesting but also significant was the change in this patient's mental attitude after the operation. Preoperatively, her shyness was so extreme that she would converse with no one except members of her immediate family. However, after restoration of her facial contour to normal proportions, there was a remarkable disappearance of her sense of inferiority.

The pictures of patients with tuberculosis in our medical textbooks are those of emaciated and cachectic individuals when they should be those of apparently healthy specimens. It is in these apparently healthy specimens that disease is so often found and causes so much destruction.—A. M. DIETRICH, M.D., *Del. Med. Jour.*, Aug., 1941.

OCULAR MANIFESTATIONS OF HEAD TRAUMAS

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DUE to the development in mechanization and speed of all our modes of travel and transportation, we are being called upon to see an ever increasing number of eye injuries in accidents involving the head.

An intimate knowledge of the ophthalmic symptoms following head injuries lends considerable aid to the accurate diagnosis of the location and extent of the injury and, although the problem of surgical intervention is primarily that of the neuro-surgeon, we can by recognition and interpretation of the ocular manifestations greatly aid him in this solution.

There is the medico-legal problem which is usually associated with head injuries, where there is an involvement of vision or function of the eyes, which demands a very careful ocular examination to determine the extent of eye involvement and to exclude malingering.

The investigations of Rawlings⁴ have shown the tendency of most fractures of the skull to converge toward the pituitary region. The symptoms listed in the accompanying table assist in the location of the fracture.

It is a general rule that the earlier the occurrence of eye symptoms follow cerebral injuries, the more serious is the injury.

Blakeslee¹ has shown in his report from the Harlem Hospital neurological service that in 610 cases of skull fracture, 416 (78 per cent) showed eye manifestations. These included:

1. Ecchymosis and hemorrhage in the lid, conjunctiva or orbit.
2. Damage to the optic nerve.
3. Fundus change.
4. Nystagmus.
5. Pupillary irregularities.
6. Paralysis of extra-ocular muscles.

Emphysema is exceedingly common in head injuries, occurring most frequently from fractures of the lamina papyracea and is by itself no cause for alarm. It usually subsides readily following application of a compression bandage.

ANTERIOR FOSSA	MIDDLE FOSSA	POSTERIOR FOSSA
<i>Hemorrhages</i>		
Subconjunctival	Into temporal region	Into the nuchal region
Palpebral		
Peripalpebral	From the mouth	Into occipital region
Orbital		
Retinal	From the nose	Into the post-auricular region
From the nose		
From the mouth	From the ear	
<i>Cerebrospinal Fluid</i>		
From the nose	From the nose	None
From the mouth	From the mouth	
	From the ear	
<i>Brain Substance</i>		
From the nose	From the ear	None
<i>Air Escape</i>		
From frontal sinus	From the mastoid antrum	From the mastoid antrum
From ethmoidal cell		
<i>Nerve Involvement</i>		
Olfactory	Fifth (2nd & 3rd div.)	Seventh
Optic		Eighth
Third	Sixth	Ninth
Fourth	Seventh	Tenth
Fifth (1st div.)	Eighth	Eleventh
Sixth		Twelfth (?)

Hemorrhage of the lids and conjunctiva is of fairly common occurrence, being seen in 106 of the 610 cases, most often unilateral. The mechanism of production is thought to be extravasation along the nerve sheath and penetration of Tenon's capsule, or by direct extension into the orbital tissue through fracture of the roof of the orbit. The presence of hemorrhage involving the eyes should lead one to suspect a fracture, even though it could not be demonstrated by roentgenology.

The intra-ocular changes most often seen consist of hemorrhage and choked discs. The hemorrhage may be retinal, subhyaloid or vitreous. In Wolff's anatomy⁶ a diagram of the blood supply of the optic nerve illustrates how a stasis of the ciliary veins and the circle of Zinn causes a break through the lamina cribrosa and hemorrhage into the retina and vitreous. This mechan-

ism has also been well described by Derrick Vail of Cincinnati.

With the occurrence of a subarachnoid hemorrhage there is often found a quite typical retinosis, consisting of hemorrhage around the disc, which may be severe enough to extend well out into the vitreous or which may be confined to the retinal layer. These may be accompanied by choked discs.

New-born infants are frequently found on routine examination to have retinal hemorrhages which later clear up without leaving any damage to the retina. These are thought to be due to head trauma received in passage through the birth canal.

A similar picture may be seen in subdural hematoma, and the case of a three-month-old infant admitted to the pediatric service of the University Hospital who was accidentally dropped by her mother illustrates this. The child vomited and had two convulsions soon after the accident. Spinal tap showed increased spinal pressure and a bloody fluid. The anterior fontanelle was bulging and all reflexes were hyperactive. The fundi showed a mild elevation of the optic nerve with blurred margins and numerous punctate and flame-shaped hemorrhages, retinal and subhyaloid. A ventricular tap was done and clear fluid removed. A cisternal tap showed no evidence of communication of the subdural space and the cisternal fluid. Repeated subdural taps were made every two or three days over a period of two months until the anterior fontanelles were shrunken and then a craniotomy was done. An organized mass was found and removed. The fundi cleared without any damage to vision.

The occurrence of papilledema is quite common, especially in cases of subdural hemorrhage. Its presence with the history of head injury indicates, as a rule, hemorrhage, either subdural, extradural or intracerebral, with increased intracranial pressure. Kearney states that if all individuals with head injury were examined immediately after the accident a great percentage would be found to have a mild edema of the disc and a venous engorgement. This may be transitory. As a rule, the onset of a choked disc is about three to eight days, and it may persist for only a short time or last for years.

Injuries to the anterior portion of the frontal lobe rarely produce papilledema. Injuries to the cerebral hemispheres may produce moderate

edema while involvement of the posterior fossa, with blockage of the foramen magnum, may produce a very marked edema.

One must also bear in mind the possibility that a hemorrhage along the nerve sheath with compression of the vessels may produce stasis and papilledema. The neurosurgeons feel that the presence of a papilledema is an indication for the necessity of a decompression procedure or an exploratory operation.

Injuries to the optic nerve may take place at the intracranial, intracanal, orbital or papillary portions. The intracranial or short portion extending back from the optic canal to the chiasm may be compressed by fracture of the sphenoid and also from basal bleeding. There have been a few cases reported in which the optic nerve was completely torn from the chiasm.

Injuries in the canal occur mainly from fractures of the walls of the optic foramen by which the optic nerve is either primarily lacerated or compressed or secondarily compressed through bleeding.

The optic nerve from its entrance into the canal is covered by a connective tissue sheath, a prolongation of the dura, and lined by the arachnoid and pia. These are intimately connected except for lymph spaces. The dura is connected closely to the upper walls of the canal, while laterally and downward it is more loosely attached by connective tissue fibers so that in cases of partial injury to the nerve the visual field usually shows a contraction in the upper half as the clot and pressure is confined to the lower part of the canal.

While it is not possible to definitely fix the lesion in life, so many cases at autopsy have shown the injury to be in the optic canal that the probabilities point strongly to this location as the site of the lesion in most cases of obscure atrophy of the nerve after blows upon the skull. Vance⁵ in a report of 512 autopsies showed that a fracture of the anterior clinoid process accounted for a large proportion of the cases of optic nerve atrophy. Lillie and Adson³ reported two cases of callus formation in the canal following fracture which could not be demonstrated by x-ray at the time of accident.

Perhaps a considerable portion of the so-called congenital cases of optic atrophy occur from fractures of the skull in difficult births.

Injuries in the canal lead after two or three

months to descending atrophy. It behooves the examiner not to give an opinion on the basis of a normal fundus until sufficient time has elapsed for the possible appearance of atrophy.

The optic nerve in the orbit consists of a central part free from vessels and a distant part carrying them. Injuries occur in the central part three to four times as often as in the distal portion, due to the fact that injuries from weapons such as knives, et cetera, are likely to slide along the walls to the apex, and also it is there that the splinters of bone are most likely to cut the nerve.

Ophthalmic examination shows practically no change in the fundus at first, where the injury to the nerve is behind the entrance of the retinal vessels in the optic nerve, but in two to six weeks optic atrophy becomes apparent. Where the injury to the nerve is to the distal portion carrying the central retinal vessels, there will be a picture of embolism with marked edema of the disc, while the periphery may be normal.

The clinical picture is different where there is no interruption of continuity of the nerve, but where compression from a bony fragment or from hemorrhage has occurred. The course and results of these cases with hemorrhage are much more favorable than those due to the direct injuries to the nerve, for if the hemorrhage ceases before the nerve is fully compressed the ischemia which is at first present passes into venous stasis with edema, hemorrhage and neuroretinitis follows, the loss of vision is not complete and the patient may recover useful vision but with some amblyopia remaining. The peripheral fibers being most compressed in hemorrhage, there follows a contraction of the peripheral fields and the central vision may or may not remain normal. Varying field changes may be found depending upon the pressure upon the optic nerves.

There is a large proportion of cases of blindness which on autopsy are unexplained either by fracture through foramen compression or hemorrhage into the sheath. Laceration of the nerve, concussion or stretching has been thought to be a factor.

Nystagmus is fairly uncommon—when present is usually associated with lesions of the posterior fossa.

According to Curtin² pupillary changes are one of the most consistent and important signs and the presence of a unilateral dilated pupil is

usually found on the side of the involvement. It is thought by the neurosurgeons to be one of the most useful localizing signs. When the pupils are widely dilated bilaterally immediately after an accident, it is a very grave sign as a fatal outcome has followed in a great majority of these cases. Occasionally, one sees a ruptured sphincter caused by a direct blow to the eye and resulting in a permanently dilated pupil. This, however, is not as significant as other causes.

The difficulty oftentimes in making an accurate examination of the fundus without dilated pupils gives us incomplete data, but in this connection it is advisable to caution against the use of morphine or any mydriatics, lest the presence of pupillary changes be obscured.

Paralysis of the sixth nerve is fairly common; however, this is not true of the other cranial nerves. Due to the anatomical position of the abducens as it bends over the sharp apex of the petrous portion of the temporal bone and its longer course, it may be affected in almost any type of cerebral lesion and consequently has no localizing value.

The seventh nerve is frequently involved in basal fractures and often results in paralysis of the orbicularis. Involvement of the third nerve is not common; however, when the intrinsic portion is involved with loss of accommodation and pupillary reaction the prognosis is more serious. The fourth nerve or trochlear nerve is the least commonly affected. However, a fracture of the bony wall at the site of the pulley might result in paralysis of action of this muscle. One such case has been seen where a man was kicked by a horse.

Due to the fact that the internal carotid artery lies in the outer wall of the cavernous sinus, its injury often leads to an arteriovenous aneurysm.

The clinical picture is easily recognized. There is a unilateral proptosis of the globe with a synchronous pulsation of the globe and vessels with the heart beat. A thrill can be felt and a loud murmur heard over a wide area. This murmur is usually very annoying to the patient and may be the first symptom noted. There is always an edema of the lids and the conjunctiva, a stasis of all the vessels and usually some degree of papilledema. The movement of the globe is limited and there is usually a diplopia present, due to involvement of the sixth nerve.

These patients are all candidates for a surgical

ligation of the carotid artery, which is practically always successful.

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THE ACCUMULATED EXPERIENCE OF THE DEPARTMENT OF PATHOLOGY, UNIVERSITY OF MINNESOTA, ON NEUROPSYCHIATRIC MATERIAL

I. General Review

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THE Department of Pathology at the University of Minnesota has, during the past three decades, performed an extremely large number of autopsies. Recently, we have had the opportunity and the facilities to undertake an analysis of all cases with nervous system involvement autopsied between the years 1919 through 1938. It seems that such a study might be of value in demonstrating the relative frequency of certain neurologic lesions when considered not in a specialized series such as occurs in neurologic institutes, but when observed in a very general unselected group of cases. The magnitude of this undertaking is demonstrated by the fact that the present study necessitated a careful review of 31,615 autopsy records and pathologic reports. Of these, 13,479 had recorded studies of the nervous system and were, therefore, carefully abstracted. The final selection of cases for the present study is shown in Table I.

TABLE I.

1. Total number of autopsies (1919-1938).....	31,615
2. Total number of brain or cord autopsies.....	13,337
3. Stillbirths and newborns (not included in study)	2,990
4. Cases in which brain studies were done only as a routine but no lesions observed.....	3,392
5. Cases included in present survey.....	6,985

It must be realized that extensive pathologic studies of the nervous system were not performed in every case. No attempt was made to recheck the actual material since such a process would have been mechanically impossible not only be-

cause of its magnitude but also because of the absence of much of the older material. Since all autopsies were performed by members of the Department of Pathology, one can reasonably assume that the pathologic observations were accurate. Many of the reports, however, were too brief to allow for an accurate classification and were, therefore, omitted from this review. The present paper is the first of a series and is intended to give a general survey of our material. In later studies, more detailed analysis of the individual groups of diseases will be attempted.

The various types of involvements of the nervous system can be roughly divided into thirteen large groups (Table II). Such a division

TABLE II. CLASSIFICATION OF NEUROPSYCHIATRIC MATERIAL

I Intracranial Tumors	520
II Diseases of Intracranial Vessels (arteriosclerosis, hemorrhage, softening, emboli, atrophy)	2,145
III Brain Trauma	2,033
IV Meningitis	792
V Encephalitis	782
1. Suppurative (brain abscess, sinus thrombosis)	278
2. Nonsuppurative	504
VI Extrapyramidal Motor System Diseases..	28
VII Demyelinating-sclerosing Diseases	49
VIII Spinal Cord Involvement (tumors, trauma, myelitis, muscular atrophies and dystrophies)	227
IX Neurosyphilis	168
X Nerve Lesions	4
XI Functional Mental Disturbances.....	93
XII Cerebral Malformations and Hydrocephalus	143
XIII Miscellaneous Group (idiocy, cretinism, mongolism, Little's disease)	21
(102 cases duplicated in more than one group)	

From the Division of Nervous and Mental Diseases and the Department of Pathology, University of Minnesota. Assistance in the accumulation of these data was furnished by the personnel of the Work Projects Administration, Official Number 165-1-71-124. Sub-Project Number 288.

is naturally quite arbitrary. We have followed the general arrangement used by one of us (A. B. B.) in a previous publication (Outline of Neuropathology).¹ A brief statement concerning each of these groups of lesions can now appropriately be undertaken.

Intracranial Tumors.—A separate study of these neoplasms has already been published.² This group was composed of 520 cases. In 487 the tumors were reexamined histologically and reclassified according to the newer terminology. A more detailed division of these tumors is given in Table III.

TABLE III. INTRACRANIAL NEOPLASMS

I Tumors of Nerves	5
II Tumors of Meninges.....	76
III Gliomas	242
IV Vascular Tumors	21
V Tumors of Mixed Tissue.....	2
VI Hypophyseal Tumors	20
VII Granulomas	30
VIII Metastatic	81
IX Miscellaneous	43

Diseases of Intracranial Vessels.—This was naturally one of the largest groups of lesions since it included such conditions as atherosclerosis, hemorrhage, encephalomalacia, embolus, as well as some clinically related processes such as hypoglycemia, cerebral atrophy, diabetic coma and uremia (Table IV).

TABLE IV. DISEASES OF INTRACRANIAL VESSELS

Cerebral atherosclerosis (severe).....	252
Cerebral hemorrhage	681
Cerebral softening	825
Cerebral emboli	201
Clinically related processes.....	59
Uremia	30
Diabetic coma	16
Hypoglycemia	13
Cerebral atrophy	27
Senile atrophy	25
Presenile atrophy	2
Subarachnoid hemorrhage	228
Subdural bleeding	47

Only those cases of cerebral atherosclerosis were included in which the involvement of the vessels was severe, even though no associated parenchymal lesions were observed. The most common etiologic factor in both the cerebral hemorrhages and softenings was a hypertension, causing 49 per cent of the hemorrhages and 33 per

cent of the softenings. Arteriosclerosis without hypertension was the next most common etiologic factor. By far the greatest number of hemorrhages were of the massive type, such lesions comprising 79 per cent of the total bleedings. Among the softenings, the multiple lesions and the large single foci occurred with equal frequency. It is probable that had more detailed pathologic studies been made, many more cases of multiple lesions would have been found.

There were 201 cases of cerebral emboli. The greatest number were infectious secondary to a subacute bacterial endocarditis. Only twelve were fat emboli and two were air emboli.

The "clinically related processes" included under this grouping were placed here primarily for convenience. A detailed discussion of the hypoglycemic cases has already been published.^{3,4} Although in neither diabetic coma nor in uremia have any constant specific cerebral alterations been observed, still the clinical picture certainly suggests a definite cerebral impairment. This may be physiologic or it may be structural with the changes so subtle that they cannot be picked up with our present techniques. However, since the symptoms appear clinically to be cerebral, these two conditions warrant inclusion in this study.

A more detailed analysis of this vascular group will form the basis of a future publication.

Brain Trauma.—Brain trauma comprised an unusually large number of cases. This is the result of a large coroner's service in which many of the deaths are traumatic. All cases of cerebral hemorrhage secondary to trauma were included with the traumatic series rather than with the vascular group.

Meningitis.—There were 743 cases of leptomeningitis and forty-nine cases of pachymeningitis. The former were divided into the purulent types (meningococcic, streptococcic, pneumococcic, staphylococcic, influenzal, colon bacillus) and the nonpurulent type (tuberculous, luetic, whooping cough).

All forms of purulent meningitis tend to be very similar histopathologically, making it imperative that bacteriologic studies be done in order to identify the causative organism. Since many of the patients were not hospitalized and therefore did not receive such bacteriologic studies, a large number remained unidentified and were classified merely as purulent meningitis. In

only 265 or 52 per cent of the 507 cases of purulent meningitis was the causative organism determined. Of these the streptococcus was the most common, followed by the pneumococcic and the meningococcic types. There were 236 cases of nonpurulent meningitis, of which 201 were of the tuberculous type.

The cases of pachymeningitis were comprised of twenty-seven cases of the nonsuppurative type and twenty-two cases of extradural and subdural abscesses.

Encephalitis.—The encephalitides were divided into the suppurative and the nonsuppurative types (Table V). There were 278 cases of the former, of which 157 were brain abscesses, 119 were sinus thromboses, and two were actinomycotic infections.

TABLE V. ENCEPHALITIS

1. Suppurative Encephalitis	278
a. Brain abscess	157
b. Sinus thrombosis	119
c. Actinomycotic infections	2
2. Nonsuppurative Encephalitis	504
a. Primary type	50
(1) Epidemic encephalitis	23
(2) Hemorrhagic encephalitis ..	27
(3) Rabies	0
b. Secondary type (following infectious diseases)	34
3. Encephalitis from soluble toxins (botulin, tetanus, diphtheria)	18
4. Toxic Encephalitis (heavy metals, poisons, drugs)	266
5. Parasitic Encephalitis	3
6. Miscellaneous	133

The nonsuppurative cases were divided into the primary types (epidemic encephalitis, hemorrhagic encephalitis, rabies) and the secondary types following infectious diseases, soluble toxins (botulinus, tetanus, diphtheria), poisoning with heavy metals and drugs (opium, barbiturates, alcohol, arsenic, lead, carbon monoxide, strychnine, cyanide, et cetera), parasitic invasion (torula, trichina, cysticercus), and a miscellaneous group. In the latter were included the cerebral complications following such conditions as heat stroke, sunstroke, anesthetic deaths, strangulation, suffocation, and electrocution.

In the secondary forms of encephalitis it was frequently difficult to determine whether the actual cause of the clinical symptoms was due to cerebral damage. Whenever a doubt existed, the

cases were excluded. Here also, because of the large coroner's service, the number of deaths from heavy metals, poisons and drugs were somewhat out of proportion to the other types of encephalitis.

The question might be raised as to the justification of calling many of the above forms of cerebral complication a true encephalitis. From a strictly neuropathologic point of view, this term should include only the inflammatory diseases of the brain, but actually it has come to be used for any cellular reaction, be it inflammatory or degenerative. This has resulted, no doubt, from the fact that changes listed as degenerative and those called inflammatory are in many cases histologically qualitatively the same. It is for this reason that under the clinical term of encephalitis one frequently includes not only those primary infectious processes but also those cerebral reactions secondary to infectious diseases, to drugs, and to heavy metals as well as to parasitic invasions. A discussion of this problem has already been published.⁵

Extrapyramidal Motor System Diseases.—This was a very small group composed of twenty-four cases of parkinsonism, two cases of Huntington's chorea and one of Sydenham's chorea. In extrapyramidal system diseases the course in the patient is often a long and chronic one with the patient usually drifting away from the original source of observation. For this reason there has been a great scarcity of post-mortem tissues available for study, and even when autopsies were obtained, the chief interest was centered upon the acute cause of death and the long-standing extrapyramidal system involvement was entirely overlooked. Most cases of Huntington's chorea become institutionalized and, therefore, are not observed in a routine autopsy service outside the state hospitals.

Demyelinating-sclerosing Diseases.—This most interesting group includes such conditions as Wilson's disease, multiple sclerosis, amyotrophic lateral sclerosis, subacute combined degeneration, Schilder's diffuse sclerosis, et cetera. These diseases are probably more common than our figures disclose, but similar to the extrapyramidal system involvements, they are chronic in course and, therefore, not seen frequently at autopsy. The advent of liver therapy has almost com-

pletely obliterated the deaths from combined sclerosis.

Spinal Cord.—The analysis of the lesions of the spinal cord was probably the most unsatisfactory of the entire series, primarily because a routine examination of the cord is not performed at most autopsies. Most of our cases were, therefore, highly selective. We have no accurate information concerning such common conditions as the vascular diseases of the cord. The majority of the cord cases were comprised of tumors, poliomyelitis, and the muscular dystrophies and atrophies where special interest was centered on the cord lesion.

Neurosyphilis.—There were 168 cases in this group divided as follows: eight, taboparesis; fourteen, tabes; twenty-six, paresis; two, gumma, twenty-two, meningovascular; and two, congenital. Of these cases, sixty-nine produced definite vascular damage and were also included under cerebral hemorrhage and softening.

Nerve Lesions.—Very few of these cases were available for study. Involvement of the peripheral nervous system is not infrequent clinically but apparently death from such lesions is uncommon.

Psychoses.—Naturally, in the general population autopsies on the functional mental states are infrequent because the obviously disturbed patient is frequently placed in a state hospital. Moreover, there is a great tendency on the part of the public to be secretive about such cases within their own families and for this reason the noninstitutionalized psychoses do not receive continuous medical supervision and rarely come to autopsy. However, sufficient clinical studies are available to show fairly accurately the relative frequency of these psychogenic disturbances within the general population.⁶

Nervous System Anomalies and Hydrocephalus.—Since newbirths and stillbirths were excluded from this study, many types of cerebral malformations, especially those producing death of the fetus, are lacking in our survey. The most frequent anomalies in this study were spinal bifida, internal hydrocephalus, encephalocele and porencephaly. Hydrocephalus with spina bifida comprised 41 per cent of all anomalies.

There were 120 cases of severe hydrocephalus. Of these, fifty were secondary while seventy were listed as primary. By far the most common cause of the secondary hydrocephalus was a chronic meningitis.

Miscellaneous Group.—In this group were included some widely scattered conditions such as feeble-mindedness, amaurotic idiocy, cretinism, mongolism, Little's disease, et cetera. The number of cases of each were very few and warrant no specific remarks.

Summary

1. A statistical study is present of all autopsies on the nervous system performed by the Department of Pathology, University of Minnesota, over the twenty-year period extending from 1919 through 1938.

2. The present study is the first in a series covering this material and is intended to give only a general survey. Detailed analyses of the individual groups of lesions will follow in later reports.

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Even in the most disastrous wars it is clear that the casualties are trivial in comparison with the annual morbidity and mortality from wholly preventable causes suffered by the population. Along with the expenditure of dizzy billions to combat foreign foes, it would seem the part of wisdom to devote a respectable amount of our defense energies and resources to the conquest of the ever present and very real foes within our domestic circle, if for no other reason than the fact that the first line of military defense is the health of the civilian population.—K. E. MILLER, Med. Dir., U. S. Pub. Health Serv., *Amer. Rev. of Tuberc.*, Dec., 1941.

INTRAPLEURAL PNEUMONOLYSIS

Experiences with This Procedure at Nopeming Sanatorium

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IN the treatment of pulmonary tuberculosis the value of successful pneumothorax has been established beyond dispute. The frequency with which adhesion of the visceral and parietal pleura prevents such successful collapse has been discouragingly high. When the cavity has been held open by extensive fusion of the visceral and parietal pleura in the apex, as often happens in the fibroid type of case, thoracoplasty has been the best alternative. This procedure, however, is limited to the stabilized lesion with a good contralateral lung. In the more virulent types of tuberculosis, such as the exudative lesion, where pneumothorax is the ideal therapeutic measure, successful collapse is often prevented by adhesions of the string, cord, band, and sheet types. In the past, most of these pneumothoraces have had to be abandoned as failures. Sometimes the addition of phrenic nerve interruption has relaxed these adhesions enough to allow closure of the cavity. Attempts at stretching the adhesions by maintaining increased pressures were most often accompanied by serious complications, such as effusion and empyema, resulting from partial tearing of the interfering adhesions.

The procedure of intrapleural pneumonolysis affords a most satisfactory method of converting the incomplete and unsuccessful pneumothoraces into successful ones. At Nopeming Sanatorium our interest in this procedure dates back to 1933 when a patient was admitted to our sanatorium after having had her adhesions cut. During the next four years a number of cases with pneumothoraces with adhesions preventing closure of cavity were operated upon in the Duluth hospitals. Since August of 1938 the procedure of intrapleural pneumonolysis has been performed at Nopeming Sanatorium by the author. The experiences with the procedure of intrapleural pneumonolysis in this latter series of cases is the basis of this paper.

No attempt will be made to describe the operative procedure in detail. Briefly, two cannulae are inserted through intercostal spaces into the pleural cavity at points selected with regard to the

location of the adhesions. Through one an electrocautery is inserted and through the other a thoracoscope is passed so that adhesions may be cut under visual control. The operation itself is accompanied by little or no shock and is performed under local infiltration anesthesia. The method of cauterization used, I believe, is a matter of choice of the operator. We have used actual cautery in preference to electrodesiccation as we have found that we have been able to completely anesthetize the parietal attachment of the adhesions without difficulty by using this method.

In the earlier operations we attempted to cut string, cord, and band type adhesions which were relatively long and could be cut at some distance from their parietal attachment with safety. Later, we found that by injecting the adhesions at their parietal attachment that we could literally peel the attachment away from the chest wall safely and painlessly. By this method plus the use of a transilluminating light trabeculated sheet adhesions and relatively thick fleshy adhesions could be safely detached without serious complications. We have almost routinely inserted our cautery through a light carrier using the light for transillumination and better visualization at the site of the cauterization. Following the completion of the lysis, the intrapleural pressures are adjusted well on the negative side before the wound is closed. We have found that this has reduced emphysema to an unimportant factor. We seldom have noticeable emphysema in our cases except accompanying postoperative nausea or in the dyspneic patient. We have reduced postoperative nausea greatly by eliminating morphine from the preoperative medication.

For the first few days following operation the control of the collapsed lung must be based upon fluoroscopic examination. Due to the fact that the pneumothorax has been exposed to atmospheric pressure during the procedure a marked collapse of the lung with more or less atelectasis usually occurs. As a result, attempt to control the pneumothorax by intrapleural pressures alone would be highly misleading. Even after having left the intrapleural pressures relatively high on

the negative side, fluoroscopic examination the next morning often reveals the lung completely collapsed and the mediastinum shifted toward the contralateral side. The intrapleural pressures at

ered as early as possible as prolonged delay may result in marked thickening of the adhesions or in their partial tearing with subsequent effusion and infection of the pleural space. We feel that

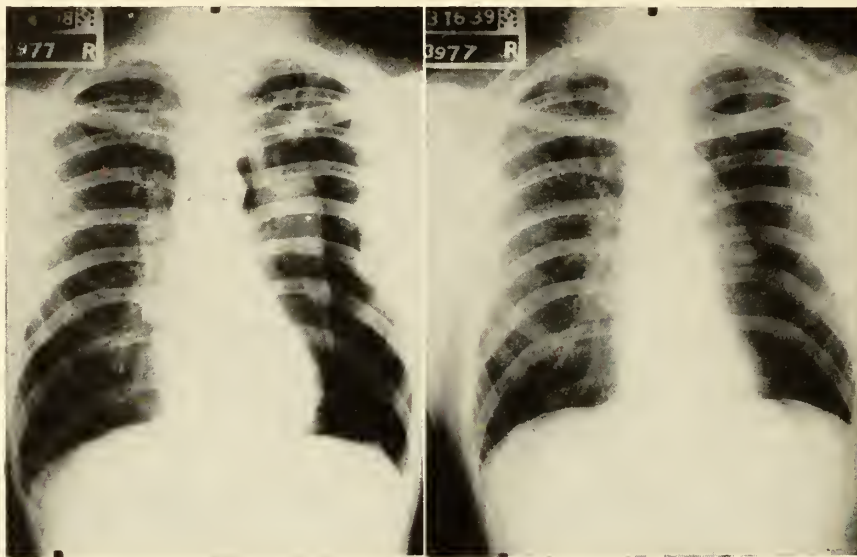


Fig. 1. Extensive pathologic lesions throughout upper lobe with large apical cavity held open by multiple adhesions of all types mainly attached in dome of apex along line of subclavian vessels. Cavity closure and sputum conversion followed intrapleural pneumonolysis.

this time will produce higher negative readings than those found immediately following the operation. In spite of this, enough air should be removed to partially reexpand the collapsed lung. Failure to do this prolongs the atelectasis and usually produces a pleural effusion. More important than this, prolonged atelectasis may interfere with the drainage of the cavity and prevent rapid closure. We have found that it is usually necessary to remove 500 or 600 c.c. of air the day following the pneumonolysis in order to sufficiently aerate the uninvolved portion of the lung and to start it functioning with respiration. When this occurs, the intrapleural pressures again return to those of a normal pneumothorax. If at the time of the first fluoroscopic examination more than a trace of fluid is noted, an intrapleural hemorrhage must be suspected, especially if the temperature of the patient has been elevated. When this is encountered, aspiration with subsequent irrigation with saline solution should be done immediately.

Much has been written as to the optimum time following the initial pneumothorax to perform the operation of intrapleural pneumonolysis. We believe that interfering adhesions should be sev-

the optimum time is usually from four to six weeks following the initial pneumothorax as this time is sufficient to allow the patient to accommodate himself to the collapse. During this period no attempt is made to force the adhesions by increasing the intrapleural pressures. We have often found it wise to complete the procedure in two stages, cutting part of the adhesions at the first operation and then allowing the more fleshy type of adhesions to stretch somewhat before attempting to sever them. In these cases we have usually waited four to five weeks before we have reoperated. When pleural effusion is present it is best to allow the inflammatory reaction to subside. The type of adhesion cut and the extent of the pneumonolysis is governed somewhat by the knowledge of the lung disease present. Where the underlying cavity is widely patent, we have severed thick, fleshy, sheet type adhesions often attached in the region of the subclavian vessels which we would not have touched if no visual evidence of cavity remained. The risk involved in attempting to sever the various types of adhesions encountered must be evaluated and balanced against the risk of the uncontrolled underlying disease process.

As our confidence in this procedure has increased, we have broadened our indications for its use until at the present time we feel that the procedure of intrapleural pneumonolysis should be considered in every case in which pneumothorax has been attempted and the collapse of the lung is inadequate because of adhesions. By means of a successful pneumonolysis, we can maintain the most efficient type of selective collapse.

In any evaluation of the procedure it must be recognized that intrapleural pneumonolysis is not an independent measure of collapse therapy but an adjunct to pneumothorax. The results, therefore, are dependent not only on the operation but upon the subsequent management of the pneumothorax. It has been particularly popular with us because the majority of our pneumothoraces are maintained by our own medical staff even after the patient's discharge from the sanatorium. It is obvious that the procedure would be less attractive with those who must relinquish their control of the collapse once the patient has left the sanatorium.

In the analysis of our series of intrapleural pneumonolyses performed at Nopeming, an attempt is being made to present the type of case chosen and the condition of the collapsed lung, as well as that of the contralateral lung. The complications which we have encountered will be enumerated with a discussion of the importance of each. The present status of patients in whom the operation was performed previous to May, 1940, will be reviewed. The results of operation will be shown.

TABLE I. SERIES OPERATED AT NOPEMING
SANATORIUM

August, 1938, to August, 1940	
Pneumonolysis performed in one stage.....	61
Pneumonolysis performed in two stages.....	11
Total.....	72*
Exploratory Thorascopies.....	6

*Four patients had bilateral pneumonolysis.

In a total of seventy-eight attempts at intrapleural pneumonolysis the procedure was carried out in seventy-two instances. Eleven of these operations were done in two stages and in four patients bilateral pneumonolyses were performed. If at the time of operation, exploration reveals that the main adhesions preventing collapse were not severable, no attempt is made to cut inconse-

quential string or band type adhesions. Good judgment will dictate against subjecting the patient to possible complications of intrapleural pneumonolysis even though they be relatively benign, if it is obvious at the time of the exploration that the main adhesion cannot be safely cut.

The group of patients subjected to operation consisted of forty women and twenty-eight men. The age range in the women was fourteen to thirty-five years and in the men fourteen to fifty-nine.

TABLE II. STATUS OF PATIENTS

Women (aged 14 to 35).....	40
Men (aged 14 to 59).....	28
Total	68
<i>Diagnosis</i>	
Minimal	3
Moderate Advanced.....	25
Far Advanced	40
Total	68

However, only four patients in the entire series were over thirty-five years of age. As to their diagnosis, at the time of operation only three out of sixty-eight were minimal, the majority being far advanced.

To further analyze the condition of the patients operated upon in this series the next two tables show the status of the collapsed lung and of the contralateral lung respectively.

TABLE III. STATUS OF COLLAPSED LUNG

Interference with collapse.....	24*
Interference with collapse and positive sputum....	12
Patent cavity but negative sputum.....	9
Patent cavity and positive sputum.....	27
Total	72

*Nineteen had positive sputum, patent cavity or both previous to collapse.

The indications for intrapleural pneumonolysis as we have used them consist of:

1. Interference with collapse of diseased lung only.
2. Persistent positive sputum without cavity.
3. Patent cavity with negative sputum.
4. Patent cavity and positive sputum.

Lest one derive the impression that the first indication alone has been used too often in this series, it is to be noted that in this group of twenty-four cases nineteen had positive sputum,

patent cavity or both, previous to the pneumothorax. As the operation in the majority of these cases is performed within six weeks to two months following the initial pneumothorax, the search for tubercle bacilli was limited to that of examination of direct smear of sputum in the earlier cases or to the search of slides prepared from twenty-four-hour concentrates. Had the interval between the initial pneumothorax and the intrapleural pneumonolysis been more prolonged, I believe that many of this group would have fallen into one of the next three classifications. As previously stated, we have come to feel that our indications for this procedure are much wider as we have realized that the serious complications could be held to a very minimum. At the present time we have no hesitancy in advising intrapleural pneumonolysis even in cases of progressive minimal tuberculosis, not responding to bed rest even though tubercle bacilli have not been demonstrated by study of gastric contents and inoculation into guinea pig. We feel that if pneumothorax is indicated, any adhesions interfering with its most efficient collapse should be severed if thoracoscopic examination reveals that they are the type which may be cut without too great a risk.

TABLE IV. STATUS OF CONTRALATERAL LUNG

Negative	19
Minimal inactive.....	11
Minimal active.....	13
Moderately advanced.....	12
Moderately advanced collapsed by pneumothorax....	9
Far advanced.....	5
Far advanced collapsed by pneumothorax.....	2
Far advanced collapsed by oleothorax.....	1
Total	72

The extent of the disease and the type of lesion present in the contralateral lung is shown in Table IV. It will be noted that in forty-two of the seventy-two patients operated upon the contralateral lesion was extensive, active, or both. In this group of forty-two cases cavities were present in the contralateral lung in nine. Pneumothorax was present in eleven cases, one of which consisted of a complete collapse complicated by chronic tuberculous empyema. In one case the contralateral lung was collapsed by oleothorax. It will be seen that even though the operation of intrapleural pneumonolysis is successful and the pneumothorax is properly maintained,

that the status of the patient following operation is not necessarily an indication of the success of the operation as in many cases the extent of the lesions in the contralateral lung in itself could prevent clinical recovery of the patient from his pulmonary tuberculosis. In a large portion of this series, converting an unsuccessful pneumothorax due to adhesions to a successful one by intrapleural pneumonolysis was the only procedure which we could safely attempt as the status of the contralateral lung would have prevented control of the pathology by thoracoplasty.

TABLE V. POSTOPERATIVE COMPLICATIONS

Reëxpansion of lung.....	1
Hemoptysis	2
Hemothorax	4
Transient effusion and hematoma.....	1
Transient effusion.....	14
Persistent effusion requiring aspiration.....	4
Tuberculous empyema.....	2

The frequency of postoperative complications encountered in our series is listed in the above table. Emphysema has not been included in this list of complications. We have seldom encountered it in our series farther than two inches from the cannula wounds. In five instances it was of moderate extent. In one case it was very extensive, resulting in the temporary reëxpansion of the lung and partial reattachment of the adhesion. However, pneumothorax was reëstablished without difficulty and the adhesion detached itself two weeks after surgery. Hemoptysis occurred in two cases. The presence of blood in the pleural space was recognized in four cases with subsequent aspiration. In one case a perforating branch of an intercostal artery was severed and retracted behind the parietal pleura resulting in a hematoma which was noticeable in fluoroscopic examination and x-ray for three weeks following the surgical procedure. In this case a mild transient effusion was also encountered. Fourteen cases had transient effusion. By this, I mean small amounts of fluid noticed at the times of subsequent fluoroscopic examinations which disappeared spontaneously within 3 weeks from the operation. In four, effusions were more persistent and required aspiration before their complete disappearance was noted. Tuberculous empyema was encountered in two cases. In both of these an attempt had been made to sever an adhesion which was subsequently found to be uncuttable after a portion of it had been cauterized. In one case the

empyema was cured by simple aspiration and in the other, where the lysis was unsuccessful in closing the cavity, a thoracoplasty was performed. We have encountered no cases of mixed empyema in our series and we have had no deaths which could be attributed to the surgical procedure.

TABLE VI. STATUS OF PATIENTS OPERATED SIX MONTHS OR OVER

Discharged	35
Medically approved for discharge.....	2
Subsequent thoracoplasty done.....	1
Still under sanatorium treatment.....	14
Dead from extension of disease.....	2
—	—
Total	54

The status of patients more than six months after operation is presented because of our interest in what has happened to them. It is not a true measure of the success of the procedure of intrapleural pneumonolysis. The subsequent course of the patient is determined not only by the state of the collapsed lung but by the condition of the contralateral lung and any extrapulmonary involvement. The average interval between the time of operation and discharge from the sanatorium in the first group of thirty-five is eight and one-half months. Of those not included in this series of fifty-four patients, an additional five have been discharged from the sanatorium. Of the two patients dead from extension of the disease, one had extensive bilateral disease with bilateral cavitation. Pneumothorax had been abandoned on the contralateral side and a partial pneumonolysis of the collapsed lung failed to close the cavity. In the other case, also with an extensive bilateral involvement with bilateral cavitation, cavity was closed following the pneu-

monolysis on the left side but the disease process in the contralateral lung was uncontrollable and the patient died from this involvement plus tuberculous enterocolitis.

TABLE VII. RESULT OF SURGERY

Satisfactory collapse.....	67
Pneumonolysis incomplete and unsuccessful.....	3
Pneumonolysis complete but cavity patent.....	2
—	—
Total	72

The final table shows the results of surgery. In the seventy-two cases in which intrapleural pneumonolysis was done a satisfactory collapse was obtained in sixty-seven. The pneumonolysis was incomplete and unsuccessful in three. All adhesions were cut with an apparent adequate pneumothorax but the cavity has failed to close in two cases up to the present time.

Conclusion

Our experience with the procedure of intrapleural pneumonolysis at Nopeming Sanatorium leads us to believe that it is a most satisfactory method of converting an unsuccessful pneumothorax into a successful one. During the two years, from August, 1938, to August, 1940, we have performed this procedure at the sanatorium and have had an opportunity to thoroughly study the procedure from the standpoint of complications and results. We believe that the procedure in competent hands is highly successful and that there are very few serious complications. We believe that all cases of pneumothorax in which adhesions interfere with collapse of diseased lung should be considered for the procedure of pneumonolysis in order to effect the most efficient results.

Tuberculosis occupies one of the first places in the disorganization of family life, both socially and economically. It breaks up homes, separates families, destroys husband-wife and parent-child relationships; and it renders many of its victims incapable of resuming their places in society. Economically, the cost of this disease to the community is tremendous. It costs a community from \$2,000 to \$5,000 to care for each case of diagnosed tuberculosis, depending upon the stage of advancement. It has its highest incidence during the most productive years of life, and the financial loss to the patient and to the country as a whole amounts to millions of dollars annually. From an epidemiological standpoint, the disease has the greatest incidence of any disease, with the possible exception of gonorrhea and syphilis.—GRACE M. LONGHURST, R.N., *Amer. Jour. of Nursing*, Jan., 1942.

DIFFERENTIAL DIAGNOSIS OF IDIOPATHIC LOW BACK PAIN

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ANY attempt to simplify this subject is necessarily fraught with difficulties because of the many divergent opinions extant as to causes of backache, and because of many other factors of less import. It must be admitted, however, that those who have been interested in this subject and have followed its progress realize that during the past few years many facts have come to light which help greatly in analysis of these cases.

Proper differential diagnosis must include not only the most frequent conditions seen as causative factors in low back pain, but must recognize also that there are some types of backache which cannot properly be filed in any group. In some instances pain may be referable to lesions not situated in the spinal column, the spinal muscles, aponeuroses or in the nervous system. Above all, it must be recognized that not infrequently, if a patient can be reassured that he does not have cancer and that his kidneys are in good condition, backache will in many instances disappear.

In many types of backache some underlying lesion of major importance can be found. It has always been my feeling that the most important approach in any case of pain in the back must rule in or out any recognizable lesion which might cause the symptoms of which the patient complains. Such lesions may be of a very serious nature, from the standpoint of either ultimate

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prognosis or actual pain and disability. A brief presentation of some lesions of importance which often underlie certain types of backache is given (Table I). This table is by no means complete, but at least it includes some of the more commonly encountered conditions which may be the basis or bases of the patient's complaint.

It must be borne in mind that low back pain may follow the onset of the actual lesion by months or years. For instance, spondylolisthesis may be present throughout a patient's childhood and adolescence, yet it may not produce symptoms until the patient has reached middle adult life or until after he has subjected his back to some unusual stress or strain. Congenital anomalies likewise may exist for years without producing symptoms. If a patient who has an anomaly or anomalies is subjected to injury or strain of more or less severity, symptoms may appear at once.

A severe, acute onset may be encountered in a case of myositis or myofascitis, pathologic fracture, or herniation of the nucleus pulposus. The physical observations common to any one of the aforementioned conditions may be identical to those of the other three at the time of onset. Roentgenograms will identify pathologic fracture, but in the other conditions mentioned, roentgenograms may not be of help. The patient's response to treatment often will help to bring diag-

TABLE I. LESIONS WHICH OFTEN UNDERLIE PAIN IN LOWER PART OF THE BACK

	Type of lesion present					
	Postural strain	Static or post-traumatic	Rheumatic	Infectious (other types)	Senescent	Neoplastic
Probable pathologic condition present	Increased lordosis Adolescent, other round back types Obesity Faulty body mechanics Faulty foot mechanics	Spondylolisthesis Defective pedicles Old fractures (Kümmells) Fractured facets Fractured pedicles Thin disks; other disk lesions Hypertrophic and post-traumatic changes Congenital anomalies	Infectious arthritis Spondylitis deformans Myositis	Tuberculosis Osteitis—benign—Paget's Intervertebral disks, inflammatory Brucella abortus Typhoid (spinal column)	Senile osteoporosis Senescent and hypertrophic arthritis	A. Malignant Myeloma Metastatic malignancy Primary sarcoma Ewing's tumor B. Benign Osteoma and osteochondroma Giant-cell tumor Hemangioma

TABLE II. PARTICULAR TYPES OF PAIN PRESENT IN DIFFERENT KINDS OF BACKACHE

	Type of pain present			
	Static, relieved by rest	Morning, with or without "jelling"	Nocturnal	Constant
Probable pathologic condition present	Traumatic spondylitis Spondylolisthesis Fractures of facets and pedicles Perivertebral traumatic changes	Usually inflammatory lesions Myositis Spondylitis Fibrositis Traumatic injuries with superimposed inflammation	Associated with neurologic conditions Tumors of the cord Lesions of disks Obscure types, no demonstrable lesion May be forerunners of spondylitis	Malignancy, primary or secondary Other tumors of cord Some lesions of disks Acute infections such as osteomyelitis or infection of intervertebral disk

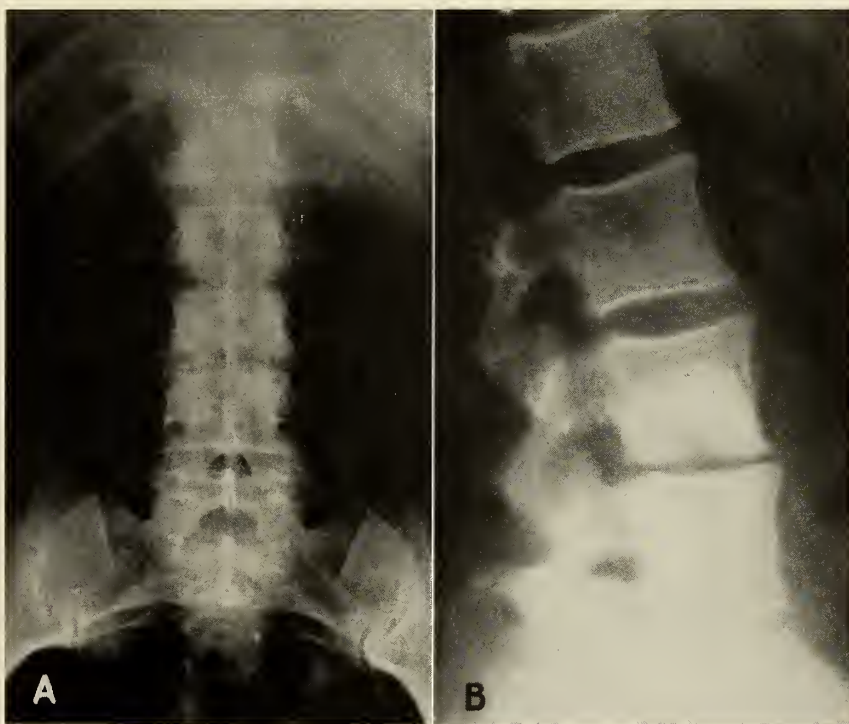


Fig. 1. Destructive lesion of the third lumbar vertebra with spontaneous healing over a period of months; *a*, anteroposterior view; *b*, lateral view.

nostic factors into the open and to make formation of an accurate diagnosis possible.

What diagnostic points are most important in the process of the physician's arriving at a decision as to the type of backache he has been called on to treat? To me, one of the most important diagnostic points in such circumstances is the type of pain present. Table II briefly sets forth my impressions concerning this subject. It must be admitted that there may be variations from any set tabulation of symptoms and that in many instances more than one type of pain will be present, but for a working outline Table II is believed to be helpful.

Similarly, observation of a patient for days

or weeks or even months or years may be necessary before a correct diagnosis can be made. Progression of an osseous lesion almost invariably is likely to occur in cases of tuberculosis, spondylitis deformans and metastatic malignancy, as well as in many other active and neoplastic conditions (Fig. 1*a* and *b*), and in many cases it is on the physician's observation of such progression as well as on his noting of the response of the patient to treatment that the final diagnosis may depend.

It should be emphasized herein that such lesions may be overlooked if they are in an early stage, in spite of complete examination of the patient. It is my own impression, for instance, that in

its earliest stages spondylitis deformans is very easily overlooked, and that not until the clinical picture has been fairly well established can the diagnosis be made. The typical picture of spondylitis is that of a spinal column in which motion is almost wholly limited, a sharply limited chest expansion, and an elevated sedimentation rate. Augmenting such a picture, roentgenograms almost always show marked fuzziness with some sclerosis of the sacro-iliac margins.

After he has made an analysis of the type of pain present, the physician turns to the physical observations. Of these, muscle spasm, tender regions, and deformities are the most important. The physician must always be able to distinguish between true muscle spasm and the voluntary type of spasm which is often exhibited by the malingerer or neurotic person in search of compensation. Integrity of the whole diagnosis in such cases depends on the ability of the examiner to recognize this difference in muscle spasm. It can always be recognized by the experienced examiner. True muscle spasm is easily recognized by a hard, firm feeling on palpation of the muscle in question, and by a list or limitation of motion in whatever direction the muscle may be antagonistic. Tender points may be misleading, but if they are consistently present on repeated examination, they

are of the utmost significance in localization of a lesion or in demonstration of referred tenderness, such as may be encountered along the pathways of nerves at times.

The importance of making good roentgenograms and accurate interpretation of them by one experienced in reading roentgenograms cannot be overestimated. Many a lesion of prime importance may be overlooked in poorly prepared roentgenograms or by one inexperienced in interpretation of roentgenograms.

Finally, complete laboratory facilities may be necessary in the diagnosis of the condition under consideration. Such factors as the sedimentation rate, the test for Bence-Jones proteinuria, estimation of the content of phosphatase in the blood, expert interpretation of changes in blood smears, and many other tests may at times be most helpful and indeed necessary in the making of an accurate diagnosis.

In all obscure cases, observation of the patient at intervals for a period of months will serve to help in establishment of a definite diagnosis. Treatment, in the meantime, must be symptomatic and if possible the patient should be made to understand that his condition demands observation for such a period as the physician may think necessary.

QUINIDINE IN AURICULAR FIBRILLATION

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THE use of quinidine in attempting to restore normal cardiac rhythm in the presence of auricular fibrillation is still a moot question. A great deal of investigation has been carried on with this drug,^{2,6} which is an alkaloid of cinchona and isomeric with quinine.¹ It is readily absorbed in the upper portion of the gastro-intestinal tract, and it is eliminated chiefly by the kidneys. Weiss and Hatcher¹¹ and S. Weisman¹⁰ found quinidine almost entirely excreted in about four hours in animals. Quinidine delays intraventricular conduction time and the auriculoventricular interval. The refractory period has also been found lengthened by most investigators.^{3,4,5,7}

This report is a study of ninety-seven cases of auricular fibrillation seen during the calendar year of 1939 at the heart clinics of the University

of Minnesota and the Minneapolis General Hospital. Quinidine was given to alternate patients and the others constituted a control group. Forty-eight treated patients were administered quinidine in doses up to forty-eight grains a day. In the group which received quinidine were twelve valvular lesions, two hyperthyroid hearts, thirty-three hypertensives and coronary cases, and one fibrillation of unknown origin. Fifteen were regulated and thirty-three did not respond favorably to the drug. There were six fatalities in this group. The results closely parallel the report of Smith and Boland from the Mayo Clinic.⁸ The control group consisted of nineteen valvular cases, twenty-nine with hypertension or coronary sclerosis, and one auricular fibrillation of unknown etiology. None of this group became reg-

ular during the period of the study and two deaths occurred. In the treated group, after the heart rate was retarded with digitalis, quinidine was administered according to the method of Weisman.¹⁰ The total daily dose was divided into three or four equal parts which were administered at hourly intervals during the morning. The daily dose was increased by three or five grains as long as fibrillation persisted and until toxic symptoms developed. The highest dose given was forty-eight grains. Toxic symptoms of nausea, vomiting, diarrhea, collapse, and death occurred following doses as low as three grains.

Eight of the fifteen regulated patients remained regular when last seen, two to twenty-four months after regulation, after an average interval of fourteen months. Eleven relapsed into fibrillation or some other irregularity in one to fourteen months, remaining regular for an average of six months.

The six fatal cases are summarized below:

Case 1.—This patient was a man eighty years old, with mild hypertension of 154 systolic and 80 diastolic, and coronary disease. The heart was enlarged to the left with a total transverse diameter of 17.1 cm. in a 26 cm. chest. He was dyspneic but not markedly decompensated. The electrocardiogram shows auricular fibrillation, left preponderance and a flat T_1 . Fibrillation had been present about six months. After digitalization with moderate improvement, quinidine therapy was started with 3 grains. The patient died suddenly in the afternoon of the first day's use of quinidine. No autopsy was obtained.

Case 2.—This patient, a female, aged sixty, had hypertension of 164 systolic and 72 diastolic. The heart measured 16.8 cm. in diameter and the chest 31 cm. No marked decompensation was noted. The electrocardiogram showed a diphasic T_1 , left preponderance, and auricular fibrillation. Fibrillation had been present only two weeks. After digitalization, quinidine was started and increased gradually to 30 grains daily. She then developed a severe diarrhea, felt very sick and died suddenly. No autopsy could be obtained.

Case 3.—This man, aged sixty-seven, had coronary disease. His heart was not enlarged, being 11.2 cm. in diameter, with a chest diameter of 26.8 cm. The electrocardiogram showed a left preponderance, auricular fibrillation and a flat T_1T_2 . There was a history of cancer of the stomach with gastric resection three years previous. No signs of recurrence were noted on complete examination including gastro-intestinal x-ray and gastroscopy. After a known fibrillation of six months' duration, he was digitalized and quinidine started. The dose was gradually increased to 36 grains daily. The patient died suddenly. No autopsy was obtained.

Case 4.—This man, aged 71, had coronary disease. His heart was enlarged to the left with a transverse diameter of 16.5 cm. in a chest measuring 26 cm. The electrocardiogram showed auricular fibrillation and a *neg. T₁T₂*. His marked decompensation improved on digitalization. After known fibrillation of one year, quinidine therapy was started. His heart became regular on 30 grains daily. He was found dead on the day after his heart had become regular. Autopsy findings revealed a heart 500 grams in weight with no marked coronary changes. The right lung weighed 925 grams, the left 1050 with no consideration, but a frothy fluid was noted. Pathological findings were hypertensive heart disease, cardiac dilatation and hypertrophy, congestion of liver and spleen, pulmonary edema.

Case 5.—This man, aged 54, had a hypertensive heart with a blood pressure of 180 systolic and 110 diastolic. He gave a history of asthma of many years' duration. He had been fibrillating three years. His heart measured 21 cm. and chest 27.5 cm. in diameter. An electrocardiogram showed auricular fibrillation and left preponderance. He was greatly decompensated but improved on digitalization. Quinidine was started and increased to 15 grains daily when the patient died suddenly. Autopsy revealed a heart weighing 526 grams and no coronary changes. Pathological diagnoses were hypertensive heart disease and arteriosclerotic kidneys.

Case 6.—This patient was a seventy-three-year-old woman with hypertension of 200 to 240 systolic and 100-110 diastolic pressure. The heart was markedly enlarged to the left with a total transverse diameter of 17.3 cm. in a 30.3 cm. chest. The electrocardiogram showed the fibrillation and a negative T_1 and diphasic T_2 . After six years of known fibrillation, quinidine therapy was instituted and increased in nine days from 3 to 33 grains a day. The afternoon of the ninth day the visiting cardiac nurse reported that the heart rhythm was regular. That evening nausea, vomiting, and collapse occurred followed by bloody diarrhea, abdominal distention, and death. Autopsy was refused by the family. The probable immediate cause of death was a mesenteric embolus.

Summary

1. Ninety-seven cases of auricular fibrillation were studied. Of this group alternate cases were selected for treatment with quinidine.

2. Of the forty-eight treated patients, fifteen became regular for periods of from one month to twenty-four months. Seven of these relapsed into fibrillation or other arrhythmia after an average interval of six months.

3. Six deaths occurred in the treated group and two deaths in the control group.

Conclusions

Quinidine is a powerful and a dangerous drug when used to regulate auricular fibrillation. It

should not be used when the fibrillation has been established for years, when the patient is old and feeble, when the heart is extremely large or shows marked coronary disease, when compensation cannot be established, when the heart cannot be slowed with digitalis. Fatalities may occur with very small doses.

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COLON BACILLUS MENINGITIS

Report of Case in a Newborn with Recovery Following Sulfapyridine Therapy

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COLON bacillus meningitis, though rare, may occur at any age. It is, however, more commonly encountered during infancy, most especially in the newborn period or shortly thereafter. Treatment in the past has been almost universally without avail. A very thorough study of this disease and the literature pertaining thereto has just been made by Barrett, Rammelkamp, and Worcester.¹ These authors report two of their own cases as well as two other cases in the literature with recovery following sulfonamide therapy. Those interested are referred to this most excellent monograph.

Case Report

C. W., a baby girl, the first child of healthy parents, was born June 16, 1941. Her birth weight was 3,070 grams. Examination at birth by the attending physician showed the infant to be normal except for an abnormality of the right ear, the external auditory canal apparently being nonexistent and the auricle itself very rudimentary. Its first week of life, spent in the hospital newborn nursery, was uneventful.

On June 23, 1941, at the age of seven days, a rectal temperature of 101° was noted. Next day, June 24, her temperature rose to 102°, and the baby's cry became sharper and more piercing. The nursery supervisor also reported that her fontanel seemed full and tense.

I was first called to see this infant on June 24. Its general condition was good, the only abnormalities present being the temperature of 102°, a white blood count of 17,000, and a definite bulging of the fontanel.

Spinal puncture yielded 5 c.c. of very turbid, syrupy, greenish yellow fluid with a cell count of 3,300 p.m.n.'s and 3,000 lymphocytes to the cubic millimeter. The spinal fluid protein was 1,700 milligrams per cent and the sugar 9 milligrams per cent. Smears of this fluid

revealed gram negative rods; culture yielded similar organisms, later proven to be *Bacillus coli*.

Treatment with sulfapyridine was instituted at once both by mouth and subcutaneously, as noted hereafter. The infant's temperature continued between 101° and 103° for three days, i.e., through June 28, after which it dropped to normal and continued so throughout the remainder of the hospital stay. During the period of fever the baby occasionally exhibited mild tonic rigidity. Repeated daily spinal punctures showed the fluid becoming less cloudy; at the same time tension of the fontanel became gradually less. By June 29 the cell count had fallen to 240 per cubic millimeter and no organisms could be found on smear or culture. By July 1, six days after institution of therapy, the fluid was practically clear. One week later, July 8, it was clear with a cell count of 32. By July 14 the cell count had fallen to 5 per cubic millimeter.

Cyanosis appeared during the period of intensive chemotherapy, and later a mild secondary anemia became evident. Both findings were believed to be due to the sulfapyridine; they improved with no treatment other than discontinuance of the drug.

The infant was discharged from the hospital July 21, 1941, at the age of five weeks, weighing 3,430 grams, a gain of 340 grams over its birth weight. She was readmitted four days later because of a temperature which subsided within twenty-four hours and was of indeterminate origin. The spinal fluid was normal on this entrance. She was again discharged on August 1, one week after entrance.

Progress since this time has been uneventful. At present, at the age of four and a half months, she appears to be a normal child, weighing 6,525 grams, or 14½ pounds.

Laboratory.—The spinal fluids of June 24, 25, and 26 all yielded gram-negative rods on direct smear. These organisms were grown on culture from the fluids of June 24 and 25. Organisms were absent on

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direct smear and culture of the fluids of June 27 and thereafter.

Dr. J. J. Grabow, pathologist of St. Mary's Hospital, reported that the organism in the spinal fluid was a gram-negative rod. Inoculation of treptose broth resulted in an abundant growth of these rods. When subcultured on eosin methyl blue medium they produced the typical metallic sheen characteristic of *B. coli*.

Treatment.—Sulfapyridine was given this child orally from the time it was first seen on June 24. An original dose of 4 grains was given and thereafter 2 grains was administered every four hours both day and night, making a total of 12 grains daily for five days through June 28. The dosage was cut to 1 grain every four hours, or 6 grains daily, from this date through July 7; then 1 grain every six hours, or 4 grains daily, through July 8, on which date it was discontinued.

In addition the child was given 25 c.c. of 0.3 per cent sodium sulfapyridine subcutaneously on June 26; this

was repeated on June 27. Throughout the forty-eight hours of June 28 and 29 it was given 50 c.c. of a 0.5 per cent solution subcutaneously every eight hours for a total of six injections.

Blood and spinal fluid levels of sulfapyridine were unfortunately not obtained.

Summary

A case of *Colon bacillus meningitis* in the newborn with recovery following sulfapyridine therapy is reported. The treatment was comparatively simple, the response very rapid, and recovery is apparently complete without residue. Portal of entry of the infection was not identified.

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PRESUMPTIVE TUBERCULOUS ENTERITIS

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SYMPTOMS of intestinal disease in the case which we are reporting were mild and yet, because of the disease of the spinal column and the family history, a thorough investigation seemed indicated. The symptoms were strikingly similar to those commonly associated with the syndrome of the irritable bowel. Several unexplained attacks of abdominal distress had occurred, but otherwise the history was not impressive, although the patient emphasized that she had not felt as well as usual in the six months prior to registration at the Mayo Clinic. Common symptoms of enteritis, such as diarrhea, anemia, loss of weight, and so forth, which are characteristic of such conditions as nontropical sprue or nonspecific hypertrophic jejuno-ileitis, were absent, yet roentgenologic investigation of the small intestine in this case suggests the presence of extensive enteritis.

In the case of tuberculosis enteritis reported by Schapiro, both the clinical manifestations and the findings at roentgenologic investigations indicated a diagnosis of nonspecific hypertrophic jejuno-ileitis. Death occurred in this case and a definite diagnosis from examination of the small bowel alone could not be established at necropsy. Microscopic examination revealed marked hyperplastic and exudative inflammatory changes and occasional giant cells, but no definite formation of tubercles was found in the wall of the small bowel. However, anatomic tubercles were found in the enlarged regional lymph nodes. In many instances, tuberculosis of the bowel has been suspected; however, proof of the presence of such a condition has been lacking in most instances. Examination of stools for *Mycobacterium tuberculosis* is usually of no assistance and such proof as presented by Schapiro is unusual.

Inasmuch as the etiology must of necessity be pre-

sumptive, it seems advisable to review briefly the data on our patient and her family.

Report of Case

The family history was important. The patient was one of fourteen children. In 1919, the father had died of pulmonary tuberculosis. In 1935, one other member of the family, and possibly the patient had tuberculosis. Two sisters had been found to have pulmonary tuberculosis; they had died in a sanatorium. Because of these two occurrences of pulmonary tuberculosis, each remaining member of the family had been examined for its presence. In October, 1940, another sister who had not recovered completely from an infection of the respiratory tract and who had not been well for the subsequent nine months had been found to have pulmonary tuberculosis. She had entered a sanatorium and death had occurred two weeks subsequent to admission. Following this death, the remaining members of the family were re-examined. A daughter of the sister who had died in 1940 was found to have pulmonary tuberculosis and at the time of this writing is in a sanatorium. This brings the total number of deaths from pulmonary tuberculosis in this family to four.

In 1932 the patient had had an attack of abdominal pain, the details of which she had forgotten. The physician in her home locality had raised the question of intestinal obstruction; however, after a short time her symptoms had disappeared entirely. A year later, in 1933, she had experienced another attack of abdominal pain; a diagnosis of appendicitis had been made and appendectomy had been performed.

The patient, a woman seventeen years of age, registered at the Mayo Clinic on August 26, 1935. She had been examined by the physician in her home locality, who had found a tumorous mass at the level of the eighth thoracic vertebra. The patient related that she had been aware of this mass for six months. However, there had been no local symptoms and she had been in good health.

On examination at the clinic tenderness was absent over the tumorous mass and motion was not limited; however, some kyphosis was present at the level of the

From the Division of Medicine, The Mayo Clinic, Rochester, Minnesota.

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eighth thoracic vertebra. The lymph nodes in both supraclavicular and left axillary regions were moderately enlarged and firm. A diagnosis of tuberculosis of

of an elevated temperature of 99.4° F. (37.4° C.) there were no other significant physical findings. Results of the laboratory tests were inconclusive and results of the

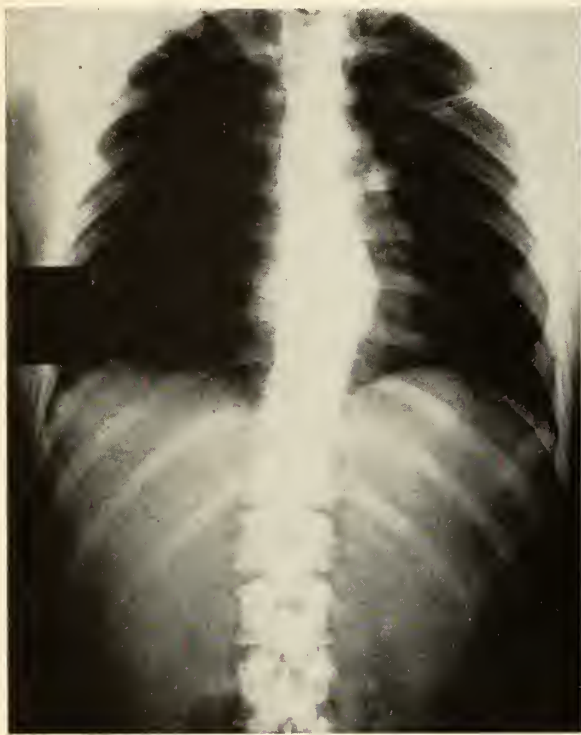


Fig. 1. Thoracic portion of the spinal column as it appeared at roentgenologic examination in August, 1935, revealing tuberculosis of the eighth and ninth thoracic vertebrae associated with paravertebral abscess.

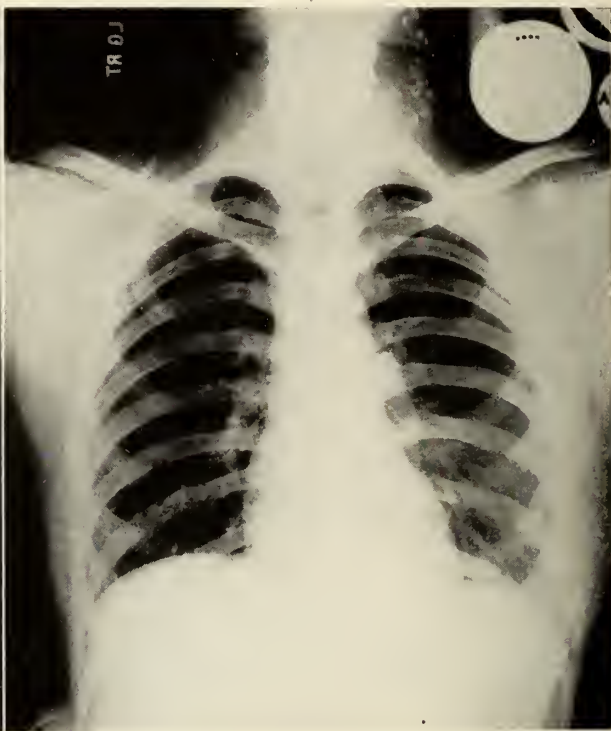


Fig. 2. Old healed tuberculous lesions of vertebrae and also healed calcified cervical lymph nodes, July, 1935.

the eighth and ninth thoracic vertebrae associated with para-vertebral abscess was made (Fig. 1). At operation, bone was grafted to the seventh and eleventh thoracic vertebrae. Convalescence was uneventful. As the patient lived nearby, observations were made occasionally for several years after operation (Fig. 2). Two years after operation the patient obtained work as a housemaid and continued at this employment until enteritis developed in July, 1939.

On July 26, 1939, the patient, while stooping, experienced a cramping pain in the right upper quadrant of the abdomen, which she described as so severe that it had been difficult to breathe and that for the moment it had prevented her from talking. The entire episode had lasted only twenty minutes. She had noted tenderness in this region prior to the attack. At examination a short time following the attack of pain she had no complaints whatsoever. In the evening of the same day the pain recurred and again was severe. She could not recline because of the pain and was more comfortable in a sitting position. Tenderness was present in both lower quadrants and the upper right quadrant of the abdomen. This attack lasted approximately two hours and then the pain disappeared completely. After this episode, with the exception of not having felt as well as usual for the six months prior to July, 1939, when she again came to the clinic, she had not had any abdominal symptoms. Diarrhea, gaseous distention or other significant symptoms referable to the abdomen had been absent.

On July 27, 1939, she was examined at the clinic. Tenderness was present in both the upper and right lower quadrants of the abdomen. With the exception

routine blood studies were either normal or negative. Roentgenologic examination of the gall bladder, kidneys, ureters, bladder and colon disclosed nothing abnormal; however, the terminal portion of the ileum was not visualized. Roentgenologic studies of the small bowel revealed that granulomatous enteritis involved the lower portion of the jejunum and much of the ileum in a patchy distribution, which may have been a tuberculous process. Because of the extent of the apparent involvement of the bowel by this inflammation, surgical intervention seemed inadvisable. Also, because of the extent of involvement of the bowel, further attempts at better roentgenologic visualization of the terminal portion of the ileum were not indicated (Fig. 3).

The first urinalysis disclosed hematuria, grade 1, and pyuria, grade 2, with 50 cells in each microscopic field as viewed under the high power objective. A second urinalysis disclosed an occasional erythrocyte and pyuria, grade 2. A specimen of urine obtained by catheterization disclosed the presence of pyuria, grade 1. These gradings were made on a basis of 1 to 4. Excretory urograms failed to reveal disease of the urinary tract.

The patient was instructed to take a soft, low residue diet high in vitamins, to which cod liver oil, yeast and a tablespoonful (15 c.c.) of calcium lactate in hot water were added daily. Complete rest in bed was advised and she was dismissed on August 8, 1939.

The patient returned to the clinic on October 10, 1939. A record of the temperature taken each day at 4 p.m. revealed frequent rises to 99.4° F. and 99.6° F. (37.4° C. and 37.5° C.). She had felt well and had gained 4 pounds (1.8 kg.). Roentgenologic examination

of the small intestine at this time revealed nothing abnormal except for evidence of mural thickening in the 6 or 8 inches (15 or 20 cm.) of the terminal portion of

day or two, when it had been 99°F. (37.2°C.). At this visit careful roentgenologic studies of the small bowel again disclosed nothing abnormal.



Fig. 3. The small intestine as it appeared at the first roentgenologic examination in July, 1939. The changes manifested are those of diffuse jejuno-ileitis. In the lowermost portion of the ileum the hyperplastic element seemed to be more prominent.

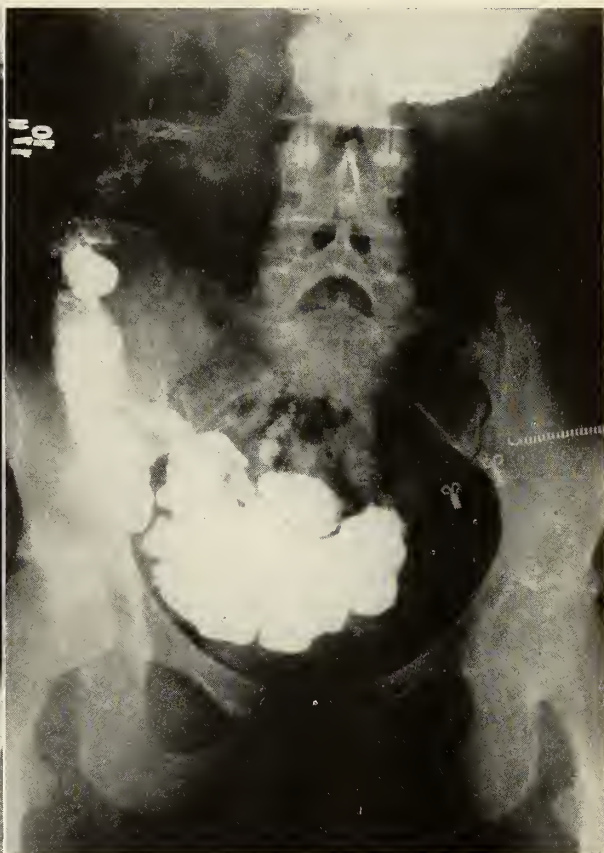


Fig. 4. Mural thickening of the terminal portion of the ileum, October, 1939.

the ileum (Fig. 4). She was dismissed with instructions to continue the same regimen.

The patient was seen again on January 23, 1940, six months after the diagnosis of granulomatous enteritis had been made. Her temperature, taken at 4 p.m. each day, had been normal from October 21, 1939, to this time, with the exception of a week in which her temperature ranged from 98.8° F. to 99.2° F. (37.1° C. to 37.3° C.). Roentgenologic examination of the colon disclosed nothing abnormal; however, the terminal portion of the ileum again could not be visualized, but roentgenologic study of the small bowel disclosed nothing abnormal. She was dismissed with the same instructions as previously.

On April 30, 1940, the patient was seen and stated that her temperature had remained normal. She had remained in bed until March 15, 1940, and then had begun to walk about, at first for a short time but gradually remaining up for longer periods. At this visit she was feeling well and had no complaints; however, she had been resting most of each day.

The patient was last seen on October 26, 1940, fifteen months after the diagnosis of enteritis had been made. She was ambulatory all day but had been retiring early in the evening. She had been assisting in the household duties but still observing her periods of rest. Her temperature had been normal with the exception of a

Comment

This case brings up several common diseases for consideration and distinction. Instances of acute jejuno-ileitis are not seen by the roentgenologist because the attacks are not of sufficient duration and, as a general rule, the symptoms are too acute to warrant roentgenologic investigation. It seems reasonable that non-tropical sprue need not be considered in this case because of the lack of symptoms of the type associated with sprue. The absence of diarrhea and anemia are of interest. The roentgenologic findings, which were not those of sprue, disappeared in a comparatively short time, although no form of liver was used in the treatment.

Nonspecific hypertrophic jejuno-ileitis must be considered in the differential diagnosis. It must be admitted that the duration of the symptoms and the apparent good health of the patient are out of proportion to the roentgenologic findings. The patchy distribution of the inflammatory process is not characteristic of nonspecific hypertrophic jejuno-ileitis, although "skip areas" do occur in this condition. The disappear-

ance of roentgenologic findings in such a short period is not an accompaniment of nonspecific hypertrophic jejuno-ileitis. It must also be remembered that involvement of the small bowel was so extensive that surgical intervention was felt to be hopeless.

We feel that the family history and the patient's history of previous tuberculosis of the spinal column, in

spite of the absence of active pulmonary disease, make a presumptive diagnosis of tuberculous enteritis tenable. In other similar cases findings on surgical exploration offer precedent for such a diagnosis.

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PRESENT ROLE OF "ALCOHOLICS ANONYMOUS" IN THE TREATMENT OF CHRONIC ALCOHOLISM

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IN THE September, 1941, issue of MINNESOTA MEDICINE, there appeared an editorial on "Alcoholics Anonymous," briefly describing the history, growth, objectives and mechanics of this seven-year-old organization. At the present time there are two chapters of this unique society operating in this state. These are situated in Minneapolis and Saint Paul. Each of these organizations, which have been in operation less than a year, have enjoyed consistent growth and have demonstrated achievement which warrants, even at this relatively early date, the consideration and respect of any physician who has attempted to treat chronic alcoholism. In general, the progressive development of the Minnesota groups is similar to the establishment and growth of the organizations in the fifty or more other cities which constitute this national movement.

In December, 1941, I had the opportunity of attending a general weekly meeting of the Minneapolis organization which was made up of approximately 125 members (about eighty of whom, approximately two-thirds, are expected to remain abstinent according to the experience of other cities). Also there were present the wives, or husbands, of many of the members; well-wishing although somewhat curious friends, and about a dozen equally curious members of the medical profession, including myself. This meeting was conducted in an efficient and highly commendable manner with an unusual spirit of coöperation. Most of all, one could appreciate the very purposeful direction—namely, that of the mutual objective of the members in defeating the habit of alcoholism. At this same meeting I had the opportunity of renewing the acquaintance and briefly discussing the present attitude of two former patients. The apparent, and what impressed me as real, improvement in the condition of these patients deserves a report and probable recognition of Alcoholics Anonymous as an important treatment and rehabilitation agency for patients who have chronic alcoholism.

Report of Cases

Case 1.—A single man, aged thirty-two years, was seen at the Mayo Clinic in 1940, after a period of a few weeks' hospitalization for alcoholism with which

he had been struggling unsuccessfully for approximately ten years. His general physical state was good and he was superficially clear in his thinking except for a lack of appreciation of the hold alcohol had upon him. This was demonstrated by the illusory opinion that he still could "beat the game."

The past history was the usual picture of alcoholic defeats with a record of having handled many worthwhile jobs, including that of salesman, radio program manager, and government employe, only to lose these positions successively through his alcoholic bouts. There was no single or unusual etiologic factor disclosed in a review of the dynamics which preceded the alcoholism. Intelligence and general abilities were well above average. Although he suffered somewhat from competition and self-comparison with an older brother, this was more apparent than real, and there was never any lack of affection or interest in the patient on the part of the various members of the family. More justly it might be said that his drinking had been begun as a means of enhancing the conviviality of a socially conscious adolescent. The sense of freedom and increased social poise which he had experienced suggest that underlying conflicts and feelings of inferiority definitely had been present but probably no more than in the average adolescent. The next ten years had been marked by gradually increased dependence upon alcohol mixed with periods of abstinence, remorse, self-criticism for opportunities, and time wasted. The development of mental mechanisms of rationalization and projection, through which he was able to soften the pain of his failures by placing the blame on others, had marked the introduction of a more serious phase of the alcohol problem.

From 1936 to 1940 numerous hospitalizations were instituted with temporary benefit, even to the extent of abstinence from alcohol for one year. However, he always had entertained the idea, which later became almost an obsession, that he eventually would be able to drink socially. (One of the primary principles of the Alcoholics Anonymous program is the simple acceptance as a fact that the member can never imbibe again.)

The results of examination at the clinic in 1940 were objectively negative. Although his history was highly suggestive of that of a psychopathic personality, we were unable to limit the diagnosis to more than "chronic alcoholism without psychosis."

In the next fifteen months he spent two visits, totaling approximately six months, in a state hospital. Although these were followed by fairly long periods of abstinence, there was never any recognizable attitude of personal security noted in the patient, but rather a somewhat defiant, quasi-arrogant manner,

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as though he were trying to convince himself that all was well.

His affiliation with Alcoholics Anonymous early in the autumn of 1941 is too recent to draw conclusions therefrom. However, his personal reaction to the crisis created by his admission of defeat by alcoholism, his co-operation with the group in these few months, his endorsement of the program and honest evaluation of himself indicate definite improvement from a psychiatrist's viewpoint. For these reasons this case, which is the prototype of so many other cases, seemed worth reporting.

Case 2.—In February, 1941, a married man, aged forty-nine years, was admitted to the Neurologic Service of St. Mary's Hospital in an intoxicated condition. He had consumed approximately a quart of whiskey per day for three or four days. No remarkable precipitating factors could be elicited for the periodic drinking which had become progressively more frequent since 1930. His business had become more demanding during that period with acquisition of more responsibilities, both professional and social, and it was thought these might be working him into a trap, from which he felt alcohol offered the only escape. General examination demonstrated dehydration, the usual tremors, and ataxia of the toxic type. There also was a bilateral horizontal nystagmus which disappeared with the other neurologic signs as the toxic state cleared. The mental status was that of a tense, mildly irritable, apprehensive individual, whose restlessness caused him to make glib and meaningless promises in the hope of leaving the hospital to obtain more alcohol. This restlessness largely disappeared with the institution of an eliminative and adequate dietary regime, supplemented by the usual vitamins.

No intensive probing of psychogenic factors was made but a rather complete evaluation of the immediate situation was made with recommendations for more judicious expenditure of his energies in his work and recreational endeavors. His physical status, emotional control, and apparent insight were commendable at the time of his dismissal ten days later. In spite of this temporary relief, he relapsed within a few days and fully resumed his former habits, which now began to interfere seriously with performance of his business duties. Through the offices of his family and friends he enlisted the aid of Alcoholics Anonymous, went through the detoxifying hospitalization period, and adopted the program completely.

When seen in December, 1941, he had resumed the full responsibilities of his former occupation and convincingly declared he had begun to enjoy life again. Proudly he stated, "I've been dry for seven months"—by far the longest "dry" period in the past ten years.

Comment

It may seem premature to report these cases at the present time since the periods of abstinence are still well within the danger zone. As I have indicated, the patient in case 1 enjoyed a period of abstinence of almost a year during a long period of alcoholism. However, I am of the opinion that at no time in the past fifteen years has he ever demonstrated an attitude (supported by observations of friends) which has been as favorable as the one recognized at present. In other words, it would seem that there is some actual change in personality. This, of course, is the ultimate objective of every physician, psychiatrist or psychoanalyst in the treatment of chronic alcoholism. The resultant change may represent merely a reorganization of habits which exclude alcohol, yet a profound reorganization of character, disposition and temperament,

and any other features that go to make up personality, may take place. I will frankly admit that during the period of my active treatment of these two patients, I considered one of them as a psychopathic personality—a constitutional psychopathic inferior—who presented a hopeless task if one were thinking of cure. The incidence of chronic alcoholism in psychopathic personalities, whose outstanding defect is that of a lack of emotion, that is, emotional immaturity, is much higher than the incidence of alcoholism among neurotic or psychotic persons. It is reasonable to assume that many of the benefits obtained through the self-organized, self-administered, coöperative organization, are derived from the opportunity it offers the individual to accept responsibility. Furthermore, he is given the opportunity to become emancipated from a state of emotional immaturity through his constructive efforts in behalf of the society. In other words, the responsibility and demands of coöperation are probably of first importance in his delayed maturation. The most rational program and sympathetic counsel of any physician is liable to fail if he is dealing with an individual who is still struggling to assert himself in a judicious manner, or to emancipate from parental or other protective influences even at an age of forty or fifty. So far as I can determine there is no miraculous nostrum handed to the patient on a silver platter by Alcoholics Anonymous. The organization demands a great investment of intellectual, emotional, and physical energy. Convalescent members are "on call" at any time in the twenty-four hours to go to the bedside of a patient who has called for help. It is his job to administer to that patient with the judgment of one who has recently experienced the same anguish and whose primary objective is to "bring his patient through." The qualitative as well as the quantitative results that have been accomplished by the organization locally and nationally, leave little doubt that the rapport and even insight developed in the patient by his exalcoholic brother are considerably more effective than those induced by the counsel of his physician.

It would seem at the present time that Alcoholics Anonymous has much to offer the medical profession, by taking some of the highly refractory cases of chronic alcoholism off its hands. The medical profession, however, has reciprocal benefits to offer the organization. Alcoholics Anonymous has requested assistance in properly effecting detoxification of the new members preparatory to establishment of their program. Hospitals and physicians in metropolitan districts have given valuable assistance in working out these objectives. There are about 8 to 10 per cent of the individuals accepted in Alcoholics Anonymous, however, whose alcoholism may be symptomatic of an underlying organic condition such as tumor of the brain, convulsive disorder, manic-depressive psychosis or less obvious involvement of the neuromuscular system. It is the hope of the executive board of Alcoholics Anonymous to be able to establish local medical consultation facilities to which they can turn for counsel in these more difficult cases. It seems logical that such an agreement should work to the benefit of both organizations.

CLINICAL-PATHOLOGICAL CONFERENCE

◆ MINNEAPOLIS GENERAL HOSPITAL ◆

Frank C. Andrus, Pathologist

Presentation of a Case

DR. FRANKLIN MOOSNICK: The case is that of a fifty-six-year-old white man who was admitted for the last time on December 30, 1941. His present illness dated back to December, 1940, when he developed back pain which he described as lumbago. It was a catching pain which prevented him from straightening upright. He saw a chiropractor who gave him treatments which made him feel better. However, the pain got more severe and further adjustments were of no benefit. A few weeks later he began to notice discomfort in the heels of both feet. He thought it might be due to his shoes so he padded them but got no relief. The pain grew worse and became stabbing in character. It gradually spread to involve his ankles, calves, knees, and legs during the next six months. A few weeks after the onset of the pain, he began to notice edema of his ankles particularly in the evening which disappeared, however, with bed rest. This went on for a period of five or six months. During this time the pain had grown to such severity that he was unable to keep his covers over his feet at night.

DR. E. T. BELL: His main complaints at that time were confined to the pain in his legs?

DR. MOOSNICK: Yes. About the same time, August, 1941, he began to notice difficulty with his bladder, i.e., frequency, occasional incontinence, and difficulty in starting the stream. These symptoms were not constant. About a month before admission, November, 1941, he began to have trouble keeping his balance properly. He noticed that he would stumble frequently, mostly to the right side. This kept growing worse until in the course of a week, he fell as many as four or five times a day and had to take to his bed. He had no associated vertigo or faintness. He also felt that he could not control the right side of his body. He knew what he wanted to do with his feet but they would not respond. With that he noticed changes also in his right arm and right half of his body. He took to bed with these symptoms but they continued to grow worse. A week before admission he noticed diplopia. He had a little tinnitus with ringing and a crackling sensation in his ears at this time. About two weeks before admission he noticed difficulty in his speech. With that story, he came into the hospital.

His past history was not remarkable. Family history revealed tuberculosis, cancer, and hypertension. His mother had died of cancer of the stomach at the age of sixty-three years. He had had heart trouble

during his adolescence being particularly bothered with missed beats and generalized weakness so that he was unable to indulge in activities with boys of his age. He had had no specific treatment at that time and no definite diagnosis had been made. The only other illness he had had was smallpox in 1922.

At the time of admission he was found to be well developed but extremely pale and quite weak. He had evidence of fairly marked weight loss. Physical findings included generalized lymphadenopathy. The nodes were felt to be discrete, firm, and nontender, and had a tendency to appear in chains. Neurological examination revealed the pupils to be equal and regular and to react to light. Some nystagmus was noted in the left eye, particularly on upward or outward gaze. The chest, thyroid gland, neck, and prostate were normal. There was no tenderness on pressure over the spine. He could not move it actively but suffered no distress in that region. There was slight edema of his ankles. The reflexes on the right were slightly more active than on the left, particularly in the legs. The Babinski reflexes and the Hoffmann sign were negative. There was general loss of muscle tone over the entire body most marked over the right leg and slightly less marked in the right arm. He had diminished sensation in both legs to pinprick and touch. The vibration sense was diminished and position sense was equivocal.

Laboratory Findings: The Rytz and Kahn were negative. The hemoglobin was 68 per cent, the erythrocyte count 3,800,000, the leukocyte count 8,200, and the differential count 85 per cent neutrophils, 12 per cent lymphocytes, and 2.5 per cent monocytes. The urine had a specific gravity of 1.022 and contained a faint trace of albumin. A number of x-rays were taken which showed nothing of importance.

His hospital course showed a progression of his symptoms and a general downhill course. The nystagmus increased. He developed left facial weakness and his hearing became decreased, particularly in the right ear. The right arm became much weaker. From paresis in the beginning, he went on later to palsy. He was unable to stand or to move about his bed. The reflexes on the right side over a period of a couple of weeks became more active. However, there was no spasticity at any time.

Spinal puncture was done and showed an initial pressure of 120 mm. Prompt jugular response was obtained on the left and none on the right. The

final pressure was 50 mm. Examination of the spinal fluid revealed 1 to 2 cells, 85.6 mg. of protein, and a positive Nonne test. A first midzone gold curve was obtained. His left eye developed a ptosis and later a total palsy so that he could not open his eye. He developed proptosis and paresis of all the extra-ocular movements on that side. A lymph node biopsied showed a malignant lymphoblastoma of the Hodgkin's disease type.

His speech became more slurred until it was difficult to understand. He began to run a high grade fever after two weeks which finally rose to 108 degrees on the day of his death.

In summary, here is a man who was previously well. In the course of a year, he develops signs of peripheral neuritis of both legs gradually involving much of his body. He then had associated bladder symptoms which we associated with peripheral neuritis. Then, shortly before death, he developed right hemiparesis, and then paralysis of his left eye.

DR. G. E. FAHR: What about the lymph nodes?

DR. BELL: They showed Hodgkin's disease. The question is what explains this neurological picture.

DR. MOOSNICK: It was our clinical impression that perhaps this man had Hodgkin's involving the lymph nodes around the peripheral nerve systems and then rising to the brain giving the cerebral picture. We thought it logical.

DR. BELL: You put the Hodgkin's where it was needed! To account for all his symptoms, he would have to have a lot of spread of the Hodgkin's.

DR. MOOSNICK: Well, he had lymph nodes all over.

DR. BELL: This is a pretty hard case to diagnose clinically, but it is one of great interest. If you see the postmortem picture you can see the whole story. But it was very puzzling from the clinical picture.

Autopsy Findings

DR. H. E. MORTENSBAK: At the time of autopsy, the body was that of a poorly developed and poorly nourished man. There was no jaundice or edema. The right pupil was wider than the left.

The peritoneal cavity was negative. The appendix was normal. No abnormalities were noted on examination of the spleen, liver, gastro-intestinal and biliary tracts, or the pancreas and adrenal glands. The genitourinary tract was also negative.

Chains of enlarged lymph nodes were found in the cervical, axillary, and inguinal regions. Those in the abdominal and thoracic cavities were not particularly enlarged. The scalp, skull, and meninges appeared entirely normal. The vessels at the base of the brain and over the convolutions were examined carefully but showed no gross change. On serial section of the brain, a number of small areas of softening were found. A fairly large area of softening and discoloration was seen in the lower part of the left side of the pons. The spinal cord and the cauda equina were also removed and they revealed small scattered areas of softening, the cause of which was not apparent.

DR. BELL: There was softening in the pons but no lymph nodes in the cranial cavity or spinal canal. You still don't have any Hodgkin's to explain all these neurological symptoms.

DR. FRANK C. ANDRUS: Microscopic examination of the organs revealed a very striking and severe change. In all of the tissues examined, including the kidneys, prostate, the myocardium, lymph nodes, brain, pons, spinal cord, and cauda equina, numerous small arteries showed peri-arteritis nodosa. The adventitia and muscularis were infiltrated with large numbers of mononuclear leukocytes and neutrophils producing great thickening of the wall with reduction in the size of the lumen and not infrequently thrombosis of the artery. Eosinophiles were not prominent in the lesions just as they were not increased in the peripheral blood. Only the very small arteries, under 1 mm. or so, appeared to be involved; thus, the nodular thickenings were not apparent upon gross examination. This also accounts for the fact that no infarction was found in the kidneys, prostate, and other organs except the brain. The softening in the central nervous system was clearly due to infarction. When we examined the cauda equina, we saw the reason for the peripheral neuritis. The vessels which accompany and nourish the spinal nerves and the nerve rootlets are involved and the pain is due to their ischemia. Thus, the symptoms of peri-arteritis nodosa are not primarily due to the disease itself but to the infarction and ischemia of the various organs supplied by the affected arteries. This explains why the symptoms encountered in this disease are so many in number and so varied. Not uncommonly, particularly when larger arteries are involved, the attention of the clinician is directed especially to the heart, the kidneys, or the intestine and the patient dies with the symptoms of coronary sclerosis, uremia, or intestinal infarction. In this case, the nervous system, although not the only one affected, produced the predominating symptoms. Eosinophilia is rather common in these cases but is not always present.

The etiology of this disease is entirely unknown. Bacteriological studies and animal inoculations have not yielded any information. We believe that it is infectious in nature and, in the absence of any demonstrable bacteria, presumably due to the filterable virus. No known treatment is of benefit. A few cases have been diagnosed prior to death. The diagnosis may occasionally be established if cutaneous nodules are palpable and biopsies are done. The disease itself does not appear to be always fatal; of 101 reported cases, 10 per cent recovered. Some cases, the diagnosis of which was established by biopsy, have remained well for some years. I remember seeing one case a short time ago where the patient had vague muscular pains and aches and an eosinophilia. A biopsy of the muscle was obtained hoping to establish a tentative diagnosis of trichiniasis. This also turned out to be peri-arteritis nodosa. We have been looking for other cases but were thrown off by the picture of Hodgkin's disease in the lymph node.

On reviewing the sections of the biopsy of the lymph

node, I found that I had failed to notice one small vessel at the hilus of the node which showed the typical change of peri-arteritis nodosa. I saw the picture of Hodgkin's disease in the lymph node and looked no further.

DR. FAHR: Is this change seen in the cauda equina common?

DR. BELL: It is pretty common in the peripheral nerves. The neuritis is due to lesions of the arteries supplying the nerve trunks. The lesion cuts down the blood supply to the nerve tissue and that is why the patient develops the peripheral neuritis you saw here. This is the type of case you don't see very often, but there are instances of peri-arteritis nodosa in which the chief manifestations are neurological.

DR. FAHR: Did you know about the peri-arteritis nodosa before you looked at the sections.

DR. ANDRUS: I missed the one vessel I showed you in the lymph node which was biopsied. I found the Hodgkin's disease and didn't look any further.

There has been a collection of eighty-seven cases published in the English literature and a list of the organs in the frequency of their involvement. The kidneys ranked highest, almost constantly being in-

involved. The next in order were the heart, liver, spleen, and lungs. I think that many of their autopsies must have been incomplete because they list peripheral neuritis as being the common symptom but did not demonstrate the lesion in the peripheral nerves.

DR. FAHR: That is why there are so many people with symptoms—so few pathologists find arteritis because they don't examine the nerves.

DR. BELL: How common is hypertension?

DR. ANDRUS: It was noted in forty-six of the 101 patients and not infrequently it takes the acute, fulminant course. There seems to be a correlation between the patients who have renal lesions and the hypertension.

DR. MOOSNICK: Is it often possible to palpate nodules along the peripheral arteries?

DR. BELL: Cutaneous lesions and nodules are found in only about one-fifth of the patients. A node biopsy will not rule out the conditions since the portion biopsies may not have been affected by the disease.

Anatomic Diagnoses: (1) Peri-arteritis nodosa; (2) Hodgkin's disease.

PEDIATRIC-PATHOLOGIC CONFERENCE

DULUTH PEDIATRIC SOCIETY

O. W. Rowe, President

Arthur H. Wells, Pathologist

HYDROPS OF THE GALL BLADDER

Report of Two Cases

HENRY A. SINCOCK, M.D.

Superior, Wisconsin

Case 1 is that of a five-year-old white female whose birth history is noncontributory. As an infant she was breast fed and developed normally. Her past illnesses included chickenpox, mumps, whooping cough, and measles. Her present illness started on December 24 at 7 p.m. when the child appeared cranky and had a temperature of 102° F. An enema was given at that time. On December 25, the child played about but occasionally complained of stiffness over the area of an old scar resulting from a drained suppurative lymph gland in the left cervical region two years previously. A mass the size of a walnut developed over this area and the stiffness of the neck became worse. The patient was seen December 26 because this swelling in the neck was larger and there seemed to be a similar swelling starting on the other side of the neck. Over the area where the first cervical gland was swollen, there was a dermatitis resembling erysipelas, and for this reason the child was seen on December 27, when the skin condition had subsided, but there appeared small bean sized glands in the axilla and the groin. Both hands were very red. The child seemingly was much improved for the next five days. She became nauseated and vomited on January 1 and January 2. Her abdomen remained distended in spite of several enemas. On January 4,

her temperature was 99.2° F., her pulse 90, and there was a marked conjunctivitis of both eyes. The nasal passages were a little excoriated from secretions and the cervical glands were much smaller. The eardrums were normal. The tongue was reddened and sore along the edges. The tonsils were reddened but not swollen and looked much improved over the first observation, ten days before. The glands in the axilla were very much smaller. The heart was normal. There seemed to be more than normal dullness over the mediastinal area. The abdomen was distended. There was marked muscle spasm, tenderness and rigidity over the lower quadrant near the level of the navel. No rectal examination was made because of the fear of rupturing an appendiceal abscess. The skin was clean and free from infection. The reflexes were equal and normal. The urinalysis was normal. There was a leukocytosis of 41,000 with 89 per cent neutrophils. The hemoglobin was 66 per cent.

Operation: A laparotomy revealed a large mass in the right side of the abdomen which proved to be a markedly distended gall bladder with a few adhesions. It contained about 200 c.c. of clear, watery fluid. The region was explored and some enlarged lymph nodes

were found around the cystic duct. A small drain was placed in the gall bladder and held in place with two purse string sutures. One tissue drain was placed in the abdominal cavity and the wound was closed in layers with chromic catgut and silkworm gut sutures.

There were no postoperative complications. The child appeared better mentally. The pain in the abdomen disappeared. The conjunctivitis healed. The enlarged cervical glands receded. Free bile began draining from the gall bladder. The drainage tubes were removed from the gall bladder after ten days and the wound healed completely. The patient has remained entirely well for a year subsequent to her recovery.

Case 2 is that of a six-year-old male who was treated with home remedies by his parents for two weeks prior to calling a physician for what they thought was a "cold" which was hard to cure. The "cold" was accompanied by an upset stomach. The boy had a continuous fever and marked pain and distention of the abdomen. Physical examination revealed a fairly well developed boy for his age. The ears and nasal passages were not remarkable. The tonsils were moderately enlarged and there were numerous cervical glands, the size of beans. The heart and lungs were negative. The abdomen was distended and there was muscle spasm and rigidity over the gall bladder region where a mass was felt. The urinalysis was normal. The leukocyte count was 9,300, and the hemoglobin was 82 per cent. The icterus index was 28.

Operation: A laparotomy revealed a large, distended gall bladder. Its walls were grayish with slightly dark bluish hue. About 150 c.c. of very thin, slightly brownish fluid were aspirated. The surgeon, Dr R E. Christiansen, did not explore further to discover the cause of the hydrops. A drain was placed in the gall bladder and the child made an uneventful recovery. The child has remained in good health for more than a year following this episode.

Discussion

DR. CARL O. KOLBRY: What was the cause of the hydrops of the gall bladder?

DR. HENRY SINCOCK: It would appear almost certain that in Case 1 the demonstrated enlarged lymph-nodes mechanically blocked the cystic duct resulting in absorption of bile and secretion of mucoid fluid in the gall bladder. With subsidence of the generalized lymph-adenopathy, the cystic duct became patent. Since the condition was transient, the same explanation apparently holds for both cases.

DR. ARTHUR H. WELLS: Was a heterophile antibody test done on either of these cases?

DR. SINCOCK: A heterophile antibody test was not done. No hematologic evidence of infectious mononucleosis was noted. Any condition causing an obstruction of the cystic duct might cause hydrops of the gall bladder. This disease is indeed rare in children.

VON GIERKE'S DISEASE OR GLYCOGEN DYSFUNCTION

Presentation of a Case

R. E. NUTTING, M.D.

Duluth, Minnesota

A male child, eight years of age, was observed from the age of five months. His birth history was normal. The baby weighed eight and a half pounds at birth and was born of healthy parents. An enlargement of the abdomen was noted at birth. At one month there were attacks of severe abdominal pain causing the baby to cry for long periods and to be exceedingly restless. Formula feedings were given from birth. Rather forceful vomiting occurred at two months. In spite of this, the baby made an adequate gain and at five months (when first seen), he weighed sixteen pounds, twelve ounces.

Physical examination revealed a markedly enlarged liver. Its edges extended down to, and slightly below, the level of the umbilicus, causing a protruberance of the abdomen. In other respects the baby was perfectly normal. The child has been under fairly close observation since that time. His fasting blood sugar curve has averaged around 60 mg. per 100 c.c. of blood. On administration of glucose, the blood glucose concentration curve was high and prolonged. The giving of

epinephrine did not increase the blood sugar. The blood cholesterol was 236 mg. and the chlorides 503 mg. per 100 c.c. of blood. The heart was always normal in size.

The child continued to have very severe seizures of abdominal cramps which seemed to be rather spasmodic in nature. Sedatives helped to some extent but would not completely relieve these spells. Various dietary regimens failed to make any appreciable change. Except for his rather small stature, the boy has developed in a normal manner and now weighs forty-three pounds and measures forty-five and a half inches. The liver enlargement has remained proportionately the same. However, during the past few years the frequency and severity of the abdominal attacks have been declining until at present he has not more than three or four comparatively mild episodes each year. His general health has been good, with the exception of frequent upper respiratory tract infections due to large, infected tonsils, which were removed this spring without event. He has been attending school and engaging in almost normal activities for a boy of his age.

HISTORY OF MEDICINE IN MINNESOTA

HISTORY OF THE MINNESOTA STATE MEDICAL SOCIETY

By ARTHUR S. HAMILTON, M.D.

Minneapolis, Minnesota

(Continued from February issue.)

Second Semi-Annual Meeting

The *second semi-annual meeting* of June 14 and 15, 1870, was held at Winona in the hall of the Normal School. Dr. Willey presided.

For the Committee on Publication Dr. C. H. Boardman, chairman, reported that an abstract of the transactions together with the Constitution and Bylaws of the Minnesota State Medical Society, and the Code of Ethics of the American Medical Association, had been selling at a cost of ten cents per copy, which seems very cheap for what Dr. Stone in his journal called the most handsomely printed transactions of a society he had ever seen.

Dr. Staples demonstrated an apparatus of his own construction, "having for its object a greater facility in obtaining apposition of the fragments *without deformity*, in cases of fractured clavicle." Dr. Staples claimed originality for his treatment on the point of pressure made upon the angle of the scapula. Considering the multitude of different forms of apparatus devised for treatment of fracture of the clavicle, it is difficult for the editor to say just how far Dr. Staples' method represented a new idea, but it is certain that the apparatus which he presented at that time, and which he had described in full in the *North-western Medical and Surgical Journal*,[†] is very similar to the apparatus still employed for that purpose.

At this meeting developed the controversy over the admission of women, which is given in full under the heading of "Admission of Women to the State Medical Society."

To return to the regular proceedings of the Society at its second semi-annual meeting, almost the entire session was given over to a discussion of epidemics which had appeared in different towns and their relation to atmospheric conditions, drainage, and cultivation of the soil as well as to the much-discussed Minnesota climate. Reports from different districts varied greatly as to the occurrence of epidemics but no common causes were agreed upon. In the early stages of the session Dr. Hewitt clearly outlined the possible relation of atmospheric conditions to the various epidemics prevalent and strongly urged concerted action in the search for the local conditions on which health depended and, in the course of his remarks, said: "There are some parts of the state (such as Rochester) which are supposed to have something *peculiar* in their air or water; and, if this could be conclusively determined, *aye* or *no*, a key would be obtained which might enable us to unlock much that now baffles us, in the *absence* of such knowledge."

One session was devoted to asking and answering questions concerning personal experiences and especially to a consideration of "climatology" and "phthisis

[†]N. W. Med. and Surg. Jour., Vol. 1, No. 3, p. 99.

pulmonalis," including the presence of ozone and *miasm*, and the influence of the latter as a cause or modifier of disease. Dr. Mayo's answer to the questionnaire as to ozone is suggestive: "I believe that many of my professional brethren are, like myself, uninformed on this point. I have tried to ascertain what ozone really is, or whether really it exists as a separate and distinct entity, but, I have never succeeded to my satisfaction."

Dr. Murphy said he had lived in the state twenty-four years and there had been a great change in the climate, the winters being much more mild and the winds not nearly so strong. Others thought there had been no material change. Practically all were agreed that phthisis pulmonalis almost never originated in the state. Some thought the climate was favorable in all cases, but others limited the effect to incipient cases, and felt that those coming with well-developed phthisis died here as elsewhere.

Drs. Murphy and Sheardown gave their personal experiences, both having come to Minnesota with well-developed tuberculosis and having made subsequent extraordinary recoveries. Dr. Mayo ventured to ask Dr. Murphy whether he was quite satisfied that when he came he labored under actual and unmistakable *phthisis pulmonalis*. Dr. Murphy maintained that his condition had been diagnosed by capable men, and he was positive as to the situation, having increased from 136 to 226 pounds in weight. Dr. Sheardown reported that he had even coughed up a portion of the tuberculous mass from his lung and nevertheless had recovered. He came to Minnesota very thin and now weighed 200 pounds.

In connection with this discussion on climatology, the following paragraphs from the *Northwestern Medical and Surgical Journal*† are interesting:

"We would call the attention of all the physicians and scientific men in the state to the circular just issued by Dr. C. N. Hewitt, *Member for Minnesota of Committee on Climatology and Epidemics*, *American Medical Association*, and Dr. W. W. Sweney, *Chairman State Committee on Climatology, Hygiene and Epidemics*.

"Claiming, as we do, for our state, a total of partial exemption from many of the worst forms of disease, we cannot overestimate the value and importance of the work thus undertaken by Drs. Hewitt and Sweney. It behooves each member of the Association to read the circular carefully; to note down the answers, which *his* experience may give, to each question, in its numerical order; and to forward them at once to the address of the above-named gentlemen, Red Wing, Minnesota."

Edwin Jackson of Saint Paul, who was in attendance, later wrote the *Northwestern Medical and Surgical Journal** on the subject of the changing climate, and thought the variations noted were more apparent than real, that no reliable evidence as to such change existed, and that the views expressed were largely based on *remembered impressions*, and noted that such extremely subjective evidence, as a rule, can carry very little weight.

The following extract from an article by Brewer Mattocks,** entitled "Has the Climate of Minnesota Changed Within the Past Fifteen Years," presents some interesting views.

"It is not an uncommon thing to hear old residents of the State assert, upon *their own experience*, that our winters have become much warmer during the time they have resided here. As a general thing, this assertion is simply the result of individual sensation. For instance, perhaps one-half of the business men of Saint Paul came to Minnesota originally for the benefit of their health. Suffering from tuberculosis, they came here weak, bloodless, and, perhaps, from a warmer climate. In such a physical condition it would not be thought strange that the cold of the first *few* winters would be exaggerated, so far as their sensations were concerned.

"As these person improve in health and increase in weight, of course they do not notice

†N. W. Med. and Surg. Jour., Vol. 11, No. 3, Sept., 1871.

*N. W. Med. and Surg. Jour., Vol. 1, No. 2, p. 31.

**N. W. Med. and Surg. Jour., Vol. 1, No. 2, p. 76.

the cold as they once did—they do not suffer from it so much. Take, if you please, the experience of the writer as an instance. Fifteen years ago, when first we came to Minnesota, from 'circumstances over which we had no control,' we sawed and split the wood for the family out of doors; we also slept *alone* in a part of the house which was never heated. This experience convinced us 'that the climate of Minnesota was not fit for a white man to live in.' But time has dealt kindly with us—we no longer saw our own wood, and we now enjoy the luxury of warm sleeping apartments. Our surroundings are changed, but not the climate. We think this homely, though personal, illustration is pertinent. We think that many, like ourselves, enjoy the change of circumstances, rather than the change of climate."

In the course of his article, Dr. Mattocks also quotes from the *Philadelphia Medical and Surgical Reporter* as follows:

"The climate of Minnesota, according to recent information, has entirely changed within the last fifteen years, since the forests have been cut down and twelve million acres of wild land have been brought under cultivation. In consequence of this change, it is now doubtful whether the climate of Minnesota is any longer beneficial to consumptive individuals. * * *

"The Secretary of the Young Men's Christian Association in Saint Paul, in a letter to the *Washingtonian* makes the following statement: 'Our Association has spent hundreds of dollars the past year, without counting the days and nights of watching, in providing homes, comforts and coffins for Christian young men who have come here from Boston in search of health, but in reality can only find a grave in the beautiful lot of the Young Men's Christian Association in Oakland Cemetery.'"

Early in the course of the June, 1870, meeting, the Society offered a prize of \$50 for the best essay on the subject of "Malaria, Its Causation and Effects upon the Diseases of Minnesota," and a similar prize for the best essay on "Uterine Diseases in Minnesota."

Dr. Stone then offered a prize of \$100 for the best essay on "The Benefits of the Climate of Minnesota to the Consumptive." All competition was limited to members of this Society. Since Dr. Stone insisted on a proprietary interest in all manuscripts submitted, one may suspect he had some interest in providing material for his new journal.

That politics played a rôle in the State Society at this early date is evidenced by an editorial of Dr. Stone in the *Northwestern Medical and Surgical Journal*.^{*} Reference is there made to a feeling that Saint Paul had already been honored with the presidency, which ought now to go to the southern part of the state. Drs. Hill, Ames and Goodrich were mentioned as available men from Minneapolis, but the Society was urged to find its leaders from the south and the names of Drs. Franklin Staples, W. W. Mayo, C. N. Hewitt, C. P. Adams and Francis H. Milligan were suggested from that territory.

The *Journal* for February, 1871, felicitated the Society on the large attendance at the annual meeting, and on "a spirit of harmony which rather surprised the croakers of our first meeting."

Third Annual Meeting

The third annual meeting of the Minnesota State Medical Society was held at the Merchants Hotel in Saint Paul, February 7 and 8, 1871. The rapidly failing health of the secretary, Dr. E. H. Smith, had compelled his return to his old home in Connecticut, and Dr. Charles E. Smith, of Saint Paul, had accepted the position so made vacant. Dr. Willey, in his opening address, thanked the Society for again having honored him with the presidency, and referred to his own uncertain health which would compel him to retire from the position. He also referred to the passage at the last session of the Legislation of a Registration Law entitled "An Act to Provide for the Collection and Publication of Statistics." Hon. Pennock Pusey, Assistant Secretary of State, who appears to have compiled the law from those already enacted in Michigan and Massa-

^{*}N. W. Med. and Surg. Jour., Vol. 1, No. 7, p. 226.

chusetts, was largely responsible for its passage, and was made the Commissioner of Statistics.

The Membership Committee reported in accordance with the list given at the end of the volume.

It was moved that a committee of five be appointed to nominate officers for the ensuing year. Dr. Sheardown wished the nominations to be made by the Society-at-large, but this motion was lost. The Nominating Committee, through its chairman, Dr. C. Powell Adams, submitted a majority report including Charles N. Hewitt for president.

A minority report was in favor of Dr. Franklin Staples of Winona, for president, with the remaining officers as in the majority report. Dr. Staples was ultimately elected president, with the other officers. (See table at end of this article.)

In his inaugural address, Dr. Staples referred to his predecessor, Dr. Willey, as follows:

I cannot expect to fill the office of my predecessor with equal acceptance to the profession. Gentlemen, I need not remind you of what we have enjoyed, as a Society, under the able management of him who has presided over our deliberations since our first organization; a gentleman whose ability and integrity, whose noble qualifications of head and heart, so justly entitled him, not only to that place which he holds in the affection and regard of the medical profession of our own State, but to the honorable position which he holds in our national Society [vice president of the American Medical Association, 1870], and in the profession of the country.

Gentlemen, the name of Dr. Samuel Willey will be cherished among us, as long as we admire culture, and have respect for professional excellence in medical men. Would that he had more physical strength and a better promise of length of days.

The Committee on Finance recommended the annual dues to be fixed at \$2 per member. Dr. Blood moved that the dues be \$1. This motion was lost and the original report accepted.

Dr. Stone introduced a motion that the fee for examination for life insurance by members of the Society be fixed at \$3. After a lively discussion the motion was laid on the table, on the ground that the local societies could better deal with this situation.

Dr. Stone also introduced a resolution pertaining to a law governing dissecting, but no information is given concerning it at that time, beyond that it was read and laid on the table.

Another motion made by Dr. Stone called upon the president to appoint a committee of three to draft and present a bill to the present Legislature for the enactment of a medical law in the state. This was strongly opposed on the score that it was premature, would fail and would hamper future effort, and was finally laid on the table, and made a special business for the following day. I have not been able to find anything further in regard to this, and the matter was evidently not pressed.

Drs. Mayo and Stuart, from the Committee on Prize Essays on Uterine Diseases in Minnesota, and on Malaria, respectively, reported no essays received. Dr. Adams desired to be relieved of the One Hundred Dollar Prize Fund, which was finally left in the hands of the treasurer. Later in the meeting, Drs. Wharton, Willey and Hewitt were appointed a committee to arrange for prize essays for another year, and reported the following:

Ozone, the chemical and other evidences of its presence in the atmosphere, and its influence in causing, modifying and preventing disease.

The Pathological Changes Induced in the Kidney and Its Secretion by Scarlatina, with chemical and microscopic preparations, in illustration thereof.

For the best essay on either of these, \$50 in money.

Original appliances and methods of treatment for fracture of bones, with at least three illustrative cases.

Prize on this a fifty dollar microscope.

The Committee on Epidemics, Climatology and Hygiene reported through its chairman, Dr. W. W. Sweney, and the Committee on Surgery, through its chairman, Dr. Staples, and the latter report appears in the appendix to the Transactions and contains some interesting information. Under Malignant Diseases, Dr. F. H. Milligan of Wabasha reported six cases of cancer of the uterus, and remarked as follows: "In my opinion, our climate, from some cause which I do not understand, is favorable to the rapid termination of malignant diseases." Whether this Delphian comment was meant to be favorable or otherwise to the vaunted Minnesota climate, who shall say?

Goiter was reported as comparatively prevalent, and Dr. J. B. McGaughey, of Winona, attributed the cause to calcium and its salts in the water. Drs. Milligan, of Wabasha, and Blood, of Owatonna, found goiter most common among the Germans, while Dr. Redmon, of Preston, thought Norwegians most susceptible and gave soft water to drink and iodides internally and externally as his treatment.

Erysipelas was not uncommon but "more amenable to treatment here than in other localities."

The great majority of surgeons in the state gave chloroform as their favorite anesthetic since it was both pleasant in administration and prompt in action, but it was generally admitted that ether was the safer.

A further report in the appendix of the Committee on Practical Medicine gave some interesting views on typhoid fever. There was evidently a considerable lack of clearness in the views held as to the nature of typhoid fever, and Dr. Galloway spoke of it as "so-called typhoid fever." Dr. Galloway also stated that this malady appeared to be endemic in most parts of the state, while, on the contrary, it was very rare in the older communities of the East, and was seldom seen except where "miasma abounds." It had been stated by competent observers that there was invariably an outbreak of the fever among recent settlers, especially those locating their farms upon the prairie. The view was expressed that there was probably no single factor which was capable of originating typhoid, and "the only apparent exception to this statement is that those advocating the doctrine of contagion allege that the fecal discharges of typhoid patients contain the typh-poison, and that they create the same disease in those subjected to their influence."

Dr. Galloway reported an epidemic of about 250 cases which had prevailed during the last fall and winter in Rochester and its neighborhood, and of these some twenty-five terminated fatally. After considerable discussion of the terms "intermittent," "malarial" and "typhoid fever," it was the author's final conclusion that the cases which he had reported represented typhoid fever in an individual already affected with chronic malarial poison, whereas what he called "pure, uncomplicated typhoid, or enteric fever," was of very rare occurrence in this region.

In the same report reference was made to a local dispute concerning the nature of certain sore throats, and the author spoke of diphtheria as "of an almost invariably fatal character."

(To be continued in April issue.)

President's Letter

I.

I HOPE that members of our Association will at this time take an especial and personal interest in the teaching of first aid. A wide knowledge of first aid is essential especially in the work of the Red Cross and in civilian defense. Air raid wardens, victory aids, defense companies, voluntary firemen and police are required to have a knowledge of first aid, and volunteer workers need instruction.

It may not be possible for a busy physician in a small community actually to conduct classes himself, but he can at least be present occasionally to act as consultant to the lay instructors. It would be better, of course, if all classes could be conducted by physicians. However, under present circumstances lay instructors are necessary. By acting as consultant the physician can supervise the course and can indicate how, in his particular practice, he would like to have his prospective patients handled, how much he would like to have done, and what not done, as a part of first aid practice.

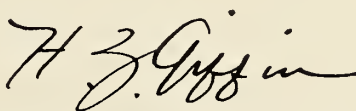
Our Committee on First Aid has been an active and efficient one for years under the chairmanship of Dr. A. B. Stewart, and will continue to function aggressively under the chairmanship of Dr. J. S. Lundy. Classes have been conducted in various communities throughout the state for some time. Lectures, demonstrations and quizzes have been given. Dr. Lundy has large and enthusiastic classes, and devotes one-half hour a week to oral examination of pupils by the quiz method, which is broadcast over the local radio station; this in the nature of an experiment. Unexpected public enthusiasm has been shown for this program. Obviously the method could not be adopted where the instructor might be accused of "advertising." A representative of the county medical society, the local health officer, a physician not in private practice, could conduct such quizzes in most communities. Whether or not such a broadcast is advisable should be decided by the local medical society.

Experience shows that after a physician once acts as instructor he becomes so interested that he rarely discontinues the work. To eliminate controversy in classes it is advisable to follow the Red Cross First Aid Textbook even though differences of opinion may arise concerning certain procedures. It is best not to air these differences before the class. It is most important to teach "what should not be done" in an emergency as well as "what should be done." Accidents have assumed such importance that a more widespread knowledge of first aid among the laity not only proves useful in emergency but acts as an element toward accident prevention. First aid instruction makes the public not only accident conscious but earnest in accident prevention.

There is no lack of general interest. The demand is for more physicians who will act as instructors and consultants, and those who can so act will, I am sure, offer their services to the local organizations. In some communities a certain amount of give and take and calm coöperation may be necessary in view of the number of organizations supervising courses in first aid and the natural tendency of these efforts to overlap. I am sure, however, that the officers of these organizations can arrive at a mutually satisfactory division of credit and responsibility. The local defense councils, the Red Cross, emergency patrols of Boy Scouts, and local safety councils are among those concerned. The Committee on First Aid of the State Association would like to be useful and will be glad to assist. Anyone interested should communicate with the chairman. The local medical defense committee should keep in close touch with the councilor of the district, who is also chairman of the District Health Section of the State Welfare Defense Committee.

II.

Medical organization for other phases of civilian defense is now taking form. It is to be hoped and expected that those in charge of the work of local defense councils will utilize existing facilities which have been functioning for years. The local health officer as representative of the State Board of Health and also an official representative of the local medical society should be members of local defense councils. Officers of local societies should see that proper representation is obtained. The organization of local emergency medical services will doubtless be placed in the hands of committees of physicians. The local health officer, where he is properly qualified, will be a logical chairman for such a committee because he is familiar with the functioning of the several divisions of the State Board of Health and also with the facilities of the community. Coördination with the Medical Battalion of the Minnesota Defense Force will be necessary. The task is one which will require initiative, coöperation, coördination and judgment.



President, Minnesota State Medical Association

EDITORIAL

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BUSINESS MANAGER
J. R. BRUCE

Volume 25 MARCH, 1942 Number 3

THE MEDICAL TESTIMONY COMMITTEE

DR. H. Z. Giffin, president of the State Medical Association, has reappointed the entire Committee on Medical Testimony for the ensuing year. The committee was increased to six by the appointment of Dr. B. S. Adams of Hibbing. This was a very timely and fitting selection as Dr. Adams was the instigator of this most interesting movement and will be one of its most enthusiastic workers. The status of medical expert testimony in this state is excellent. However, it will require constant vigilance and guidance to keep it at this high level. Several verbal

complaints have been received by members of the committee from physicians throughout the state regarding so-called questionable testimony by some of its members. Your committee cannot listen to gossip. Any physician or attorney or judge who believes that a certain testimony by a physician should be investigated, must submit his complaint *in writing* to a member of the committee and the necessary procedure will be immediately instigated. Several cases have been reported, thoroughly studied and suitable measures taken. Your committee has received national attention and the results will be carefully noted. The *Railway Bulletin*, representing the Claim Agents of every railroad in this country, published an interesting article during the past year. A similar publication was made in *The Journal of American Insurance*, in January, 1942. This journal is one of the official organs representing the insurance companies of the United States. Railroads and insurance companies because of the many personal injury suits brought against them are vitally interested in the testimony of the medical expert. It is the duty of every member of our State Association to advise your Committee on Medical Testimony about questionable or dishonest opinions by the medical expert. Only in that way can the committee function properly to help maintain the high ethical standard in our association.

E. M. H.

MILITARY SURGEONS MEET

AT the meeting of the Military Surgeons held recently in Louisville, Kentucky, an officer of the Army Air Force gave an instructive discussion of various factors involving training of civilian personnel. He emphasized the orderly expansion of aviation medicine to keep in step with National Defense. The problem falls into two large groups: (1) personnel; (2) training personnel. A total of 30,000 pilots each year calls for physical examination of 120,000 men and in addition another 100,000 must be selected for crew members, navigators, gunners, and bombardiers. Youth is most desirable as age tends to slow up reaction time.

The student successfully passing his physical examinations together with sufficient scholastic credits begins his intensive course of training as follows: He attends a replacement center for a period of approximately five weeks where he receives his vaccinations, clothing, and fundamentals in military training. His next step is ten weeks' instruction in learning to fly and making his first solo flight. Next is the basic school of ten weeks where further instruction and flying maneuvers are participated in. At the advanced school another ten weeks is spent in air maneuvers, as formation flying, night cross country flights, lectures and demonstrations of effects and anoxia, speed and centrifugal force, low pressure chamber ascents with demonstration of the effects of high altitudes on the ears, sinus cavities and intestines. In addition they are taught uses of O₂ equipment such as masks, and the care of tanks. Air force requirements of oxygen—(a) for all flights 10,000 to 12,000 feet lasting six hours or more; (b) 12,000 to 15,000 feet lasting two hours or more; (c) 15,000 feet or over, always; (d) from ground up when the climb is 2,000 feet per minute.

Successfully completing his course of instruction, he receives his wings and a rating of pilot with rank Second Lieutenant, Air Corps Reserve.

Another interesting discussion was that given by the Assistant Medical Director of National Defense of Canada.

Duodenal ulcer constitutes the biggest medical problem. Of all non-effectives returning from overseas, 25 per cent are due to ulcer. In the World War I, ulcer was the sixth cause for discharge. Fifty per cent of the Canadian army gave pre-selective meal history; seventy-five per cent in the British army. Of those treated for ten months 50 per cent are still carrying on; 50 per cent had a subsequent breakdown and returned to Canada. Those with ulcers treated in Canada were never allowed to go overseas. Seventy per cent of these are still effective; 30 per cent had a relapse and were discharged.

According to a survey of chest examinations of 400,000 enlistment films, 1 per cent was rejected at the time of enlistment, for tuberculosis. The standards for eligibility on enlistment are: (1) negative x-ray; (2) small calcified lesions, inactive; (3) small fibrous lesions, inactive. Of those who enlisted under the above standards fifty-five have broken down. Of these, twenty-five

broke down in Canada before going overseas; sixteen with negative films on enlisting; nine with small lesions; one a calcified lesion. Thirty broke down overseas; twenty-seven with negative films on enlistment; three with small lesions; and one calcified. Of the fifty-five who broke down with tuberculosis fifty-three had acute pulmonary tuberculosis with positive sputum; nine had pleurisy with effusion; and three metastatic tuberculosis.

F. L. SMITH

PRACTICE—NOT PLEASURE

WE ALL know that the Federal Government found it necessary to inaugurate the rationing of new automobile tires and tubes, effective January 5, 1942. Our government recognizes the necessity of having physicians and surgeons' automobiles equipped at all times with good tires and tubes, and, as a result, placed all members at the head of the list as far as eligibility of civilians is concerned. We should definitely appreciate the consideration that has been given us by the government, and in no circumstances should the privilege be abused as it was in the case which is herein reported.

A certain doctor in the state, shortly after the rationing program took effect, persuaded a local rationing board that due to his profession, he was eligible for a complete set of tires and tubes. In applying for these tires and tubes he stated in his application that these tires and tubes were going to be mounted upon a vehicle used principally in his profession. Two or three days after he purchased the new tires and tubes, he and his wife left on a five weeks' vacation trip by motor. This, in our opinion, was not only a most unpatriotic act but was an actual misrepresentation of fact.

The doctors of Minnesota and the doctors of the nation cannot hope to be continued as eligible purchasers of any automobile tires and tubes if there are many cases like this. It is only fair to assume that as the various state rationing administrative offices come across cases of this type and report them to the head office of the Office of Price Administration in Washington, that the eligibility rules in so far as physicians and surgeons are concerned will be drastically changed and the majority of us will have to suffer for the wrongdoing of a few.

FREE CANCER HOME

A free home for people suffering from incurable cancer was opened, in Saint Paul, on December 8, 1941. It is known as Our Lady of Good Counsel Free Cancer Home. Situated at the corner of St. Anthony and Cleveland Avenues, it is easily accessible from any point in the Twin Cities. The building is bright and cheerful. The atmosphere of the place is one of peace and contentment. Nine Dominican Sisters, Servants of Relief for Incurable Cancer, attend to all the tasks in the conduct of the home.

Anyone afflicted with cancer, and not having the means to secure care elsewhere, will be a welcome guest at the home. The sisters in charge require only to know that the patient is poor, that he is sound mentally, and that the physician in whose charge he has been recommends him for care. No limitations are made as to race, color or creed. No limitations as to locality are imposed. The home aims to serve as many as possible, providing for them every comfort and care as generously and completely as can be done. The wards are made homelike with plants and pictures chosen for their restful effect. The sisters are all trained to give efficient and sympathetic service to the sick. It is noteworthy that their spirit of forgetfulness of self quickly communicates itself to all the patients and that their serenity of mind and heart goes far towards bringing a spirit of resignation in the minds of the patients. The guests of the home are free from financial worries. They are encouraged to think of the higher things of life, and to prepare themselves for what lies beyond.

This work in behalf of the cancerous poor was begun in 1895 on the East Side of New York, by the youngest daughter of Nathaniel Hawthorne, Rose Hawthorne, known in religious life as Mother Alphonsa. Her life and work are described sympathetically by Dr. James J. Walsh in his book, *Mother Alphonsa*, and by Katherine Burton in *Sorrow Built a Bridge*. The community that she founded in 1902 now numbers upwards of seventy-five sisters and conducts homes in New York, Philadelphia, Fall River and Atlanta. The Saint Paul home is the sixth foundation established for the religious care of poor people afflicted with cancer since Mother Alphonsa began her heroic work. These homes took care of approximately nine hundred patients during the year 1941.

The homes are supported by voluntary donations from the public. There is no solicitation of funds. Although but recently opened, the Saint Paul Free Cancer Home has been the object of much public interest and many proofs of the public's desire to coöperate have been received. The present accommodations of the home are far from being taxed, and there is room for more patients there. The sisters are glad to provide a harbor and a home for as many as they can accommodate.

Injuries to the eye occur at the rate of 1,000 a day and cause an annual loss of \$2,000,000,000, says a report sponsored by the National Society for the Prevention of Blindness.—*Science News Letter*, February 21, 1942.

SKIN GRAFTING

A Demonstration of Techniques Adaptable to the Resurfacing of Granulating Areas by Use of the Padgett Dermatome

Instead of reading a paper on the general subject of skin grafting at the 1941 meeting of the Minnesota State Medical Association Dr. H. O. McPheeters presented a motion picture on this subject.

In this cinema he emphasized the general care of burns from the time of the accident until they had been grafted and healed and showed the general care throughout that time.

Asepsis from the first to the last was the watchword, with firm pressure by use of sea sponges and tight bandages to prevent edema of the tissues and the coarse hydropic granulations so commonly seen. Soap and water cleansing with moist saline applications all the time was advised as the best way to help the separation of the dead tissue and the stimulation of fresh granulations.

A patient with a very severe and extensive gasoline burn of both thighs and lower legs (patient of Drs. Harvey Nelson and R. D. Hultcrans) presented an unusual opportunity to demonstrate the preparation and use of the "blanket graft,"* in resurfacing of large granulating areas. By the use of the Padgett dermatome sheets of skin 4 by 7 inches were shaved off 0.006 to 0.008 of an inch thick and these were then sewed together on a sheet of guta percha previously cut the size and shape of the raw area. In this way large "blankets" of skin were prepared for each leg. One hundred seventy-six square inches or 1,100 square centimeters for the right thigh and 149 square inches or 931.25 square centimeters for the left thigh. The usual sponge pressure with normal saline dressings were used postoperatively. Pictures showed both the "blankets" well healed and the patient walking eleven weeks after the first was applied.

By means of the dermatome, grafts of any calibrated thickness can be removed and with much more accuracy than with any other method. It greatly simplified skin grafting.

The donor areas were well healed in the usual time and quite rapidly assumed a normal appearance.

*This term had never been used before and as far as he was able to learn, the suggestion of sewing the many separate skin sheets or grafts together into one large "blanket" was entirely original. The total area of skin transferred in the large blanket was thought to be the greatest amount ever transferred at one time, 1,100 square centimeters.

SPECIAL FOODS FOR AGED

Special foods for middle-aged and aged people may be the next step in nutrition, according to a food survey reported to the American Chemical Society by Dr. William A. Hamor, associate director of the Mellon Institute of Industrial Research, Pittsburgh.

"New advances have been made in infant feeding and the nourishing of 20,000,000 school children," said Dr. Hamor. "With less than 2,000,000 babies born a year, infant-food manufacturers are distending their markets with lines of products for older children. It has been predicted that the next step may be foods especially for the middle-aged and aged, an advance that may be nurtured by the growth of interest in geriatrics (science of aging)."—*Science News Letter*, January 24, 1942.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

Minnesota State Medical Association
George Earl, M.D., Chairman

PIONEERING IN SICKNESS INSURANCE

The hazards of health insurance planners were brought into sharp focus at a meeting for discussion of insurance problems, held in advance of the National Conference on Medical Service last month in Chicago.

There were reports from four medical society plans all launched in accordance with principles laid down by the AMA's House of Delegates for such plans.

All are independent of, but have affiliations with, hospital service plans. All offer a surgical plan as well as a medical and surgical coverage and, for the most part, subscribers are sought through employed groups with premiums deducted by the employer from pay checks.

Many figures were presented about these undertakings but they mean little, as yet, because experience and the number of subscribers to date do not warrant any useful conclusions.

The difficulties inherent in any prepayment plan for medical services have been pointed out frequently in these columns. The existence of these difficulties does not, of course, preclude the possibility that experience and further investigation will some day produce a workable formula.

It seemed to Minnesota representatives who attended this discussion meeting that the formula had not yet been found, or at least that no formula so far used had yet proved its practicability.

Still The Old Hurdles

The society which undertakes to start such a plan still has the old hurdles to face—how to protect it from chisellers; how to make it cheap enough to sell and remunerative enough to guarantee good service; how to operate legally as a non-profit organization within the existing insurance laws of the state; how to secure accurate figures and paper work within the limits of time and inclination of busy participating doctors, et cetera.

The spirit of pioneering among medical or-

ganizations is undoubtedly praiseworthy and the four pioneers who presented their experiences to date in Chicago are providing information which may be invaluable to others in time to come.

Education Important, Too

But it should be remembered also that there are many kinds of pioneering open to physicians' organizations. One of them involves a really active and effective leadership in public health education, a field of at least equal value to the ultimate welfare of the private practice of medicine in the United States. In this field, also, new patterns are being made but the dangers, uncertainties and disagreements inevitably attendant upon social experiments such as health insurance do not intrude themselves. Minnesota, though vastly interested in the success or failure of the pioneers in Michigan, New York and Western New York and California, has been content for the present to pioneer in the field of health education. For the present its committee on sickness insurance and its Council are both of the opinion that neither the people of Minnesota nor the doctors will suffer by the conservatism of this course.

Michigan's Report

Michigan's plan has been frequently described in these columns. Latest figures as reported in Chicago showed 2,117,927 member-months of service for its Surgical Group plan (offering in addition to hospitalization, payment of surgeon's fees while hospitalized) in 1941. For its complete medical service (including medical and surgical care) the figure was 74,726 member-months of care. On the basis of comparisons with the United States Public Health Service surveys of 1928-31, Michigan figures show that subscribers to their medical and surgical service received 3.25 times as much surgical care as persons in the general public. The fact, however, that their figures include many people who sub-

scribe only for hospital service makes this high ratio somewhat less impressive.

Elaborate diagnostic codes and schedules of benefits were distributed at the Chicago meeting. Financial reports weigh heavily in the red but are not necessarily significant of the ultimate success of the project. The Michigan State Medical Society generously underwrote the plan in its inception but only time will tell whether the venture can make ends meet.

Medical Expense Insurance

There are two plans in operation under medical society sponsorship at the present time in New York. One is in Brooklyn and New York City, the other in western New York. The first, also, is familiar to all students of health insurance though it is only now beginning to solicit subscribers. It is New York's Medical Expense Insurance, an indemnity rather than a service type of insurance. For certain premiums, graduated according to the income of the subscriber, certain definite sums are paid up to a maximum of \$300 in a year. The fee schedule used in Workmen's Compensation cases in New York is to be used by the doctor in charging fees to subscribers up to incomes of \$175 a month. Beyond that it is not intended that payments shall provide in all instances for the complete cost of medical care. Such subscribers shall pay any other amount agreed upon directly by the doctor. This is a plan of considerable complication, with its graduated rates for various income groups. Its success in operation will be closely watched.

"Blue Shield"

The "Blue Shield" plan of Western New York offers, in coöperation with the "Blue Cross" hospitalization plan, a contract for surgical care alone, or for medical and surgical care with restrictions on maternity care, or complete medical, surgical and maternity care with restriction.

Benefits of the plan are restricted to families with incomes of \$3,000 or under, for individuals of \$1,800 or under, for man and wife of \$2,500 or under. Maximum cost for all benefits for a family of four, including hospitalization, would be \$57.60 a year.

California Plan

The story of health insurance under medical

society sponsorship has been checkered and marked with disappointments in California. As reorganized at present under sound management, the plan offers medical, surgical and hospital service at a lower premium than anywhere else in the country with an income limit for families of \$3,000 for eligibility to medical and surgical services. Hospital services are open to all. As in the Michigan plans and in the New York Medical Expense Insurance, the subscriber pays for the initial two visits in each ailment. The Blue Shield plan of Western New York omits this customary safeguard. Hospital service, only, is available to families of subscribers in California. Total cost for a female subscriber (more than for males) is \$26.60 a year.

ARMY PROBLEMS FIRST

Personnel problems for the armed forces and for civilian defense naturally occupied a considerable portion of the program time in the 1942 National Conference on Medical Service held in Chicago, Sunday, February 15.

In view of the fact that this conference originated in Minnesota and was held here annually for many years, Minnesota representatives take an especially active interest in its deliberations. Many officials of the state medical association attend and this year the president of Minnesota's Council, Dr. W. L. Burnap, of Fergus Falls, was elected secretary of the conference for next year.

His official duties will be concerned with meeting arrangements and program, acting with Dr. J. D. McCarthy of Omaha, who is next year's president. Dr. McCarthy acted as secretary this year.

Any differences organized medicine may have had with Washington are now submerged in a common effort to promote the national defense and the strengthening of the armed forces.

Increasing the Check-off

One Washington tendency was noted, however, and delegates cautioned to act in consequence. There is a definite effort in the Social Security department to put compulsory sickness insurance into the law, at least for industrial employees. It has been mentioned as a desirable addition to Society Security aids by the President himself, and will undoubtedly appear in some

form in all legislation proposed by the department. Any addition to present Social Security aids will increase the salary check-off of workers by a considerable sum and should be opposed on those grounds as well as on the ground that compulsory sickness insurance is unnecessary and unwise for American workers.

There may be no great interest in any such plan in Congress at the present time; but the general tendency is to pass quickly whatever seems necessary for successful prosecution of the war and without too careful investigation. Congressmen and senators should be informed when such legislation is proposed of the danger of increasing Social Security expenditures for such a purpose.

HOW MANY DOCTORS?

Figures from Col. George F. Lull, chief of the personnel division of the United States Army Medical Corps:

- The army will need a total of 23,658 physicians to fill its needs this year.
- There are only 11,790 physicians in the service now.
- A total of 13,000 more will be needed by the end of 1942.
- There are approximately 3,600 officers of the Medical Reserve Corps who have not yet been called.
- Of these, 1,500 are interns and 1,700 have been deferred because they are essential in civilian positions.
- Also 104 of them are colonels and lieutenant colonels who cannot be placed at the present time because their grades are not open.
- That leaves only 296 reserve officers who are available in the reserve at the present time.

At the Chicago meeting Col. Lull urged all physicians in civilian life who can be spared to enter the service immediately. He estimated that there are some 50,000 in the age group from twenty-seven to thirty-six, of whom 30,000 would be physically qualified for active duty.

Obviously army needs are great but physicians should not forget that civilian needs are also important and that in some sections they are acutely threatened.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Julian F. Dubois, M.D., Secretary

Glencoe Physician's License Suspended for Five Years

Re: revocation of license of Arthur H. Langhoff, M.D.

On February 13, 1942, the Minnesota State Board of Medical Examiners suspended for a period of five years the license to practice medicine formerly held by Arthur Harry Langhoff, M.D., Glencoe, Minnesota. Dr. Langhoff was charged with purchasing, dispensing and administering "grossly excessive amounts" of various derivatives of opium. The joint investigation conducted by the Federal Bureau of Narcotics and the Minnesota State Board of Medical Examiners disclosed that in a period of twelve months, between December 7, 1940, and December 6, 1941, Dr. Langhoff purchased in the excess of 35,000 narcotic drug tablets made up chiefly of morphine sulphate and dilaudid. During the same period of time Dr. Langhoff issued in excess of 400 prescriptions for various derivatives of opium. During the same period of time Dr. Langhoff failed to keep adequate dispensing records. Dr. Langhoff admitted the truth of the charges against him.

Dr. Langhoff is fifty-one years of age and was born at Mountain Lake, Minnesota. He graduated from the Medical School of the University of Minnesota in 1921. Dr. Langhoff has practiced at Glencoe, Minnesota, for the past twenty years.

NEW AGENCY TO HELP RATION NATION'S DOCTORS

PAS (officially the Procurement and Assignment Service under the Office of Defense Health and Welfare Services) has just been given the job of helping the Selective Service System ration the nation's supply of medical doctors, dentists and doctors of veterinary medicine.

"Since war was declared, the shortage of these professional men has become acute," Brig. Gen. Lewis B. Hershey, director of Selective Service, points out in a memorandum to state directors (*Journal, American Medical Association*, Feb. 7).

Each of them, consequently, must serve "where he can render the greatest professional service to the nation."

Local Selective Service boards when classifying doctors, dentists and veterinary doctors are therefore expected to consult PAS committees of the corps areas on the availability of such professional men in the community. The authority of the Selective Service System to classify registrants is not affected but the information from PAS will help in making the "most effective allocation of medical manpower."—*Science News Letter*, February 14, 1942.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

J. L. McLeod, Grand Rapids, Chairman

H. B. Allen, Austin
L. S. Arling, Minneapolis
G. L. Berdez, Duluth

T. G. Clement, Duluth
W. S. Lemon, Rochester
T. A. Lowe, South Saint Paul
R. I. Rizer, Minneapolis

S. E. Sweitzer, Minneapolis
O. H. Wangenstein, Minneapolis
A. E. Wilcox, Minneapolis

WORKMEN'S COMPENSATION LAW IN MINNESOTA

SINCE its passage, the dermatologist has looked upon the Workmen's Compensation Law in Minnesota with a bilious eye. Only a very few cases coming under our observation are covered by the law.

A workman with a contact dermatitis caused by anything in his work should get the same compensation as one that has suffered an injury. In fact, a contact dermatitis usually connotes an increased sensitivity to the offending substance and frequently the man is unable to continue in his work, so loses his job or has to be transferred to other work where he does not come in contact with the offending substance.

Contact or occupational dermatitis can be caused by an endless number of substances; some of which are primary irritants and cause an immediate irritation and some only after working in them for weeks and months.

Cases Never Covered

In the Minnesota law, we dermatologists almost never get a case that is covered by the law. Included in the law are the following substances that might cause a dermatological condition: lead, mercury or phosphorus poisoning or their sequelae, arsenic, wood alcohol, nitro and amido derivatives of benzene, carbon bisulphide, nitrous fumes, nickel carbonyl, tetrachloromethane or any substance used as a solvent for acetate of cellulose, African boxwood, chrome ulceration, cancer or ulceration of the skin due to tar, pitch, bitumen, mineral oil in paraffin or any compound, product, residue of any of these substances.

A glance at the above enumerated substances will show that they do not include any of the more common causative factors of contact or occupational dermatitis.

New Legislation Needed

What should be done about this? In order to properly protect the workmen in Minnesota from any and all injuries of the skin and dermatitis we

should have compensation laws similar to those of Massachusetts, New York, Wisconsin and possibly a few other states. Anything that causes an occupational dermatitis should be included in the law. Labor in this state has long been interested in such a law and hearings have been held in Saint Paul on this subject but nothing came of them. Further efforts should be made to protect the workmen of Minnesota and to include all cases of industrial dermatitis in the compensation law.

S. E. SWEITZER, M.D.

MUST KEEP PACE

The principal public health problem today is presented by large industrial plants, Surgeon General Thomas Parran said recently in Chicago.

Industrial hygiene services must keep pace with the needs arising from high speed assembly lines he said.

Government statisticians have arrived at the enormous figure of 15,000,000 for the number of men and women employed in industry this year.

In Great Britain they have found it necessary to have one physician, at least, in each large plant together with assistants. In our own plants, on the other hand, less than one-seventh of our industrial employes have such plant service.

Dr. Parran urged that everything possible be done for protection of civilian health in the emergency. The most serious problem centers around military camps, industrial plants and shipyards located in small towns which have developed over night into large cities and where there is almost universally insufficient medical personnel.

The U. S. Public Health Service is short about 1,000 for these and other services. They have, however, developed teams of physicians and engineers who are sent out in emergencies.

Increase in venereal disease is one of the serious problems connected with the development of camps and defense industry centers. In one area in particular, the number of prostitutes leaped from 100 to 5,000. Gonorrhea in the army has increased from 27.7 to 40.3 per thousand men, largely as a result of commercialized vice in military and industrial areas. The federal government has the power to clean up these conditions now, if local officials do not do it.

PROCEEDINGS of the MINNESOTA ACADEMY OF MEDICINE

Meeting of December 10, 1941

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, December 10, 1941. Dinner was served at 7 o'clock and the meeting was called to order at 8 o'clock by the president, Dr. John M. Armstrong.

There were forty-six members and one guest present. Minutes of the November meeting were read and approved.

The annual election of officers was held and the following elected to serve for the year 1942:

President.....Martin Nordland, Minneapolis
Vice President....H. B. Zimmermann, Saint Paul
Secretary-Treasurer....E. V. Kenefick (re-elected)

The President said the Executive Committee wished to present the name of Dr. Owen Parker, of Ely, Minnesota, as an Honorary Member of the Academy, to be transferred from the Associate Member list, Dr. Parker having retired from practice on account of ill health. Motion made, seconded and carried.

The scientific program followed.

THE PROBLEM OF BLEEDING FROM ESOPHAGEAL VARICES

A. M. SNELL, M.D.

Dr. Snell, of Rochester, reported a case and necropsy findings. Lantern slides were shown.

Discussion

DR. J. M. ARMSTRONG, Saint Paul: I would like to ask Dr. Snell how long this surgical procedure has been tried out.

DR. SNELL: The first direct injections of esophageal varices were done at the Clinic by Dr. H. J. Moersch about two years ago. The original work was done by Crafoord and Freckner, of Stockholm.

DR. ARMSTRONG: The reason I asked was that I had a patient with this trouble about nine years ago; the pa-

tient lived three days, and he did have a very large liver.

DR. SNELL: I still think that ligation of the coronary veins may under the circumstances be a life-saving procedure. In this case it certainly produced very good temporary results.

DR. ARMSTRONG: Was she unconscious when she came in?

DR. SNELL: Practically so. In spite of this fact, the surgical procedure was very well tolerated.

ADRENO-GENITAL SYNDROME DUE TO ADRENO-CORTICAL TUMOR

MAX HOFFMAN, M.D., and F. E. B. FOLEY, M.D.

Drs. Max Hoffman and Frederic E. B. Foley, Saint Paul, briefly described the adreno-genital syndrome due to adreno-cortical tumor and reported a case of cortico-adrenal tumor in the female with extensive masculinizing changes, in which repeated assays of androgen and estrogen excretion in the urine were made before and after operation. Radiographs, outlining the adrenal tumor by perirenal air injection, were shown. Successful surgical removal of the tumor was described and illustrated by drawings and a motion picture film. Before and after photographs of the patient demonstrating rapid and remarkable disappearance of the masculine features were shown and the patient, a woman aged twenty-four, was exhibited. The presentation was discussed by Drs. J. M. Armstrong, A. M. Snell, M. B. Visscher, and E. A. Regnier.

A paper on the subject presented, case report and discussion will be offered for publication in a subsequent issue of MINNESOTA MEDICINE.

The meeting adjourned.

E. V. KENEFICK, *Secretary*.

Meeting of January 14, 1942

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, January 14, 1942. Dinner was served at 7 o'clock and the meeting was called to order at 8:10 p.m. by the president, Dr. Martin Nordland.

There were forty-nine members and four visitors present.

Minutes of the December meeting were read and approved.

Dr. Nordland expressed his sincere appreciation of the honor given him in electing him president of the Academy.

There was a short discussion on the question of dues of the men called into service, and a motion was carried that any member of the Academy in service be continued on the Active membership list and his dues remitted for the period of such service.

The secretary read a letter from Dr. Donald McCarthy, a candidate for election, stating that he had been called into active service and would be unable therefore to prepare his thesis in the required time for presentation. A motion was carried that Dr. McCarthy be admitted to membership without the thesis requirement.

Dr. Frank Corbett's name was transferred from the Active to the Honorary membership list, following his request for transfer to Senior list.

Dr. John M. Armstrong, Saint Paul, then read his address as retiring president, the title being "Asiatic Cholera in Saint Paul." Lantern slides were shown of early Saint Paul physicians, some of the city of Saint Paul in the 1850's and '60's, and also of death records made in which those due to cholera were listed.

The meeting adjourned.

E. V. KENEFICK, M.D., *Secretary*.

MEDICAL BROADCAST FOR MARCH

The Minnesota State Medical Association broadcasts weekly at 10:45 o'clock every Saturday morning over Station WCCO, Minneapolis, Station WLB, University of Minnesota, and KDAL, Duluth. Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

March 7—Energy Needs and Requirements
 March 14—Diet in Pregnancy and Lactation
 March 21—Diet in Infancy and Childhood
 March 28—Nutrition and the Teeth

POSTGRADUATE COURSES

Among postgraduate courses announced by the Advisory Committee on Postgraduate Courses of the American College of Physicians are three to be given in Minnesota.

A course in Peripheral Vascular Diseases, Including Hypertension, will be given by the Mayo Foundation of the University of Minnesota and the Mayo Clinic at Rochester, April 6-18, with Dr. Edgar V. Allen as director.

Another course in Arthritis and Rheumatic Diseases will also be given in Rochester, April 13-18, with Dr. Philip S. Hench as director.

During the period, April 6-18, a course on Internal Medicine will be presented at the University of Minnesota Center for Continuation Study in Minneapolis. Directors are Julius M. Nolte, Dr. William A. O'Brien and Dr. Cecil J. Watson.

MINNESOTA PATHOLOGICAL SOCIETY

Dr. C. J. Watson, professor of medicine at the University of Minnesota Medical School, will address the meeting of the Minnesota Pathological Society, March 17, on the subject: "Recent Studies of the Degradation Products of Hemoglobin."

HEART PROGRAM FOR CHILDREN

Mr. Walter W. Finke, Director of the Division of Social Welfare, State of Minnesota, announces that a heart program for children under the age of twenty-one years has been approved by the Children's Bureau, Washington, D. C., and is now ready to be set in operation.

This program is to be a function of the Bureau for Crippled Children of the Division of Social Welfare. Special emphasis will be placed on children with rheumatic heart disease who are in need of convalescent care.

Because of limited funds, only patients from rural Hennepin, rural Ramsey, Carver, Scott, McLeod, and Dakota Counties will be accepted for care. Children needing convalescent care or acute cases needing hospital care will be hospitalized at the Children's Hos-

pital in Saint Paul, where special provision has been made for these cases. A weekly out-patient clinic will be held on Friday mornings at Children's Hospital.

Dr. Malvin J. Nydahl, Head of the Bureau for Crippled Children, is pleased to announce that Dr. Paul Dwan, pediatrician, who has had a great deal of experience in rheumatic heart disease, will perform the clinical work of the heart program.

Applications for this care should be made to the Bureau for Crippled Children, Division of Social Welfare, Globe Building, Saint Paul, Minnesota. Any physician wishing to refer a patient for this needed care can do so by writing to the above address.

REDWOOD-BROWN COUNTY MEDICAL SOCIETY

Dr. O. H. McPheeters of Minneapolis read a paper on "The Injection Treatment of Varicose Veins" at the quarterly meeting of the Redwood-Brown County Medical Society in New Ulm, January 29.

Forty-five physicians and their wives attended the dinner at Turner Hall which preceded the medical meeting. The auxiliary was entertained at the home of Dr. and Mrs. Theodore F. Hammermeister.

WASHINGTON COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Washington County Medical Society was held Tuesday, February 10. The scientific program was supplied by complete sound and full color film on "Varicose Veins and Their Complications," by Becton-Dickinson and Company, presented by Richard N. Shaw of the Hospital Service Department. The film is one approved by the American College of Surgeons.

The vaccination and toxoid program is meeting with favorable responses, and the work will soon be under way.

Washington County was reported to be almost free of syphilis, with only one positive reactor in about 425 men examined for the army.

E. SYDNEY BOLEYN, M.D., *Secretary*.

FREEBORN COUNTY MEDICAL SOCIETY

At the January meeting of the Freeborn County Medical Society, Dr. A. Gullixson, presiding, many matters of importance both to the society and to the residents of Freeborn County, came up for discussion.

Dr. L. J. Kassa gave a very interesting report on the tuberculin testing of school children, a task to which he has devoted much of his time. His report included a comparative study of the status of tuberculosis in Freeborn County as compared to other counties. A resolution followed to the effect that the County Superintendent of Schools and those in charge

(Continued on Page 226)

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This book, containing her lectures, is the only text book on the subject of her methods. It reveals, for the first time, the history of the development of her treatment and its complete explanation **written by Sister Kenny, the originator of this method.** Completely illustrated and with full detail, it brings to the medical profession a highly informative and educational study.

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MEDICINE—Two Weeks' Intensive Course will be offered starting June 1st. Two Weeks' Course in Gastro-Enterology will be offered starting June 15th. One Month Course in Electrocardiography and Heart Disease every month, except December and August.

FRACTURES AND TRAUMATIC SURGERY—Two Weeks' Intensive Course will be offered starting May 4th. Informal Course available every week.

GYNECOLOGY—Two Weeks' Intensive Course will be offered starting April 6th. Clinical and Diagnostic Courses every week.

OBSTETRICS—Two Weeks' Intensive Course will be offered starting April 20th. Informal Course every week.

OTOLARYNGOLOGY—Two Weeks' Intensive Course will be offered starting April 6th. Clinical and Special Courses starting every week.

OPHTHALMOLOGY—Two Weeks' Intensive Course will be offered starting April 20th. Five Weeks' Course in Refraction Methods starting May 11th. Informal Course every week.

ROENTGENOLOGY—Courses in X-Ray Interpretation, Fluoroscopy, Deep X-Ray Therapy every week.

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(Continued from Page 224)

of schools in smaller towns require all school teachers to have a Mantoux test and to be x-rayed in an attempt to eradicate any possible carriers of tuberculosis.

In an effort to immunize the greatest possible number of school children to smallpox and diphtheria, it was decided that group immunization be instituted at the schools, on a definite date, to be arranged by the school authorities, the county nurse and the doctors.

Dr. F. G. Folken presented a comparative report on the expenditure for medical relief care in Freeborn County with that of neighboring counties. His report brought out the fact that the expenditure in Freeborn County was considerably less than that of the other counties. To unify medical fees throughout the state a fee schedule as submitted by the state organization on medical relief care will be carried out in the future.

The president appointed Drs. P. M. Gamble and L. Donovan as a committee to investigate the probable reasons for the present shortage of nurses.

After the treasurer's report it was voted to purchase defense bonds with surplus funds.

The following were elected as officers of the Freeborn County Medical Society for the coming year: President, Dr. F. W. Calhoun; vice president, Dr. R. R. Swanson; secretary, Dr. E. S. Palmerton; treasurer, Dr. L. Donovan. Drs. W. P. Freligh, M. O. Nesheim and J. P. Person were elected to serve three, two and one years respectively as censors, and Dr. J. W. Gamble was elected as delegate to the State Medical Convention with Dr. L. Prins as alternate.

L. PRINS, *Secretary.*

MINNESOTA SOCIETY FOR THE CONTROL OF CANCER

The annual meeting of the Minnesota Society for the Control of Cancer was held February 24 at Coffman Memorial Union on the University of Minnesota campus.

The afternoon program included the showing of the sound movie, "Choose to Live," which depicted one woman's victorious encounter with cancer; and an address, "A Call to Service," by Mrs. David S. Long of Harrisonville, Missouri, regional commander of the Women's Field Army of the American Society for the Control of Cancer.

Guest speaker at the dinner which followed the afternoon session was Dr. W. D. Stovall, director of the State Laboratory of Hygiene and clinical pathologist at the University of Wisconsin. He spoke on "Cancer—Its Prevention and Control."

Dr. William A. O'Brien, director of postgraduate medicine at the University of Minnesota, was reelected president of the society. Other officers elected are Dr. M. W. Alberts, Saint Paul, first vice president; Mrs. E. W. Miller of St. Peter, second vice president; Mrs. W. B. Roberts, Minneapolis, secretary; and Louis W. Hill, Jr., Saint Paul, treasurer.

In Memoriam

Eric Olonzo Giere

Dr. E. O. Giere, a surgeon for the past fourteen years in Minneapolis, although he continued to live in Saint Paul, was taken ill on the night of December 31, 1941, and died in Fairview Hospital, February 12, 1942. Dr. Giere was seventy-three years of age and had completed fifty years of practice to the day.

Dr. Giere was born in Deerfield, Wisconsin, April 10, 1868. He received his preliminary education at Luther College, Decorah, Iowa, and at Saint Olaf's College, Northfield, Minnesota. His medical degree was obtained from the University of Minnesota Medical School in 1892.

After a three months' internship at the State Hospital in Rochester, Dr. Giere began practice at Hayfield, Minnesota, in 1893. In 1895 he moved to Madison and in 1915 to Watertown, South Dakota. From 1921 until 1927 he practiced in Saint Paul, when he moved his office to Minneapolis.

At one time Dr. Giere attended clinics in Oslo, Copenhagen, Berlin and London. He took a number of postgraduate courses in New York, Chicago and New Orleans on various occasions to perfect himself in his chosen specialty of surgery. He established a clinic in Watertown and in 1927 established, with his three sons, the Giere Clinic in Minneapolis. At one time he was Chief of Staff of the Fairview Hospital.

Dr. Giere has been a member of the American College of Surgeons since its founding in 1914. He was a member of the Hennepin County Medical Society, the Minnesota State Medical and American Medical Associations.

Dr. Giere is survived by his wife; four daughters, Mrs. Olaf Larson and Mrs. Leonard Johnson of Montevideo, Minnesota, Mrs. Rodli Erling of Minneapolis and Mrs. Potter Aldrich of Saint Paul; and four sons, Rev. Verne Giere of Edgerton, Wisconsin, Dr. R. W. and Dr. J. C. Giere of Minneapolis, and Dr. Carl Norman Giere, at present a captain in the army.

DR. EVANS TO SPEAK AT UNIVERSITY

Dr. Herbert McLean Evans, director of the Institute of Experimental Biology at the University of California, will deliver a lecture on "Recent Results from Study of the Anterior Pituitary" in the Medical Science Amphitheater of the University of Minnesota, Wednesday, April 1, at 8 p.m. This lecture is under the joint auspices of the University of Minnesota Medical School and the Society of the Sigma Xi, and is open to all interested.

Internationally distinguished for his discovery of Vitamin E and his studies of the Growth Hormone secreted by the anterior lobe of the pituitary gland, Dr. Evans will speak from a background of almost twenty years' research on the subject chosen for his lecture. He will discuss the pituitary body as a regulating center for the activities of the other endocrine glands and as a participant in the regulation of body metabolism. In summarizing securely won results on this rapidly advancing frontier of science, few, indeed, are as qualified as Dr. Evans to separate fact from fancy.

MARCH, 1942



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COUNTY NEWS

Washington

At a luncheon held Tuesday, February 10, at the home of Dr. and Mrs. Strand, Bayport, Minnesota, it was the pleasure of the Washington County Auxiliary to have as its guest and speaker, Mrs. John J. Ryan, Saint Paul, State Auxiliary president.

Clay-Becker

Recently elected officers for Clay-Becker Auxiliary include: president, Mrs. C. W. Moberg, Detroit Lakes; vice president, Mrs. F. D. Thysell, Hawley; secretary-treasurer, Mrs. S. B. Seipz, Barnesville. A great deal of credit is due the group in the splendid result netted from the sale of articles made at Sand Beach Sanatorium, Lake Park, Minnesota. The combined total of the sale first held in Detroit Lakes and later in Barnesville, was \$93.32.

Ramsey

The Auxiliary Red Cross unit organized in October with Mrs. Harvey Beek in charge assisted by Mrs. John Madden, is doing fine work. It is meeting at the House of Hope Church, Saint Paul, on Monday and Thursday from 10:00 a.m. to 3:00 p.m., and on Wednesday evenings from 7:00 to 9:00 p.m. Besides making surgical dressings and bandages, the unit is also doing sewing and knitting. Mrs. Beek, who is a member of the Ramsey County Red Cross Board, is in charge of all surgical dressings made at the House of Hope Church by other Red Cross units meeting there.

Hennepin

Mrs. F. S. McKinney presided at the meeting of the Auxiliary held Friday, February 6, at the Medical Arts Lounge. Interesting movies of Norway, Sweden, Denmark, and England taken during their trip abroad just before the war broke out in Europe, were shown by Mrs. Malcom Hanson, a member of the Auxiliary.

Dr. C. C. Kennedy, Minneapolis, vice chairman of the State Medical and Surgical Relief Committee of America, gave a brief history of the organization and its aims. Two doctors in New York started the group two years ago and at their call for help in this work, sixty men responded from the United States at large. The organization has steadily grown, and today instead of sending the medical and surgical supplies collected to England, these articles are being used for United States war efforts. A request for such supplies recently came from Queen's Hospital in Honolulu. A committee of Auxiliary women under the direction of Mrs. F. S. McKinney has just finished a collection campaign of these medical and surgical supplies for

the organization in downtown medical offices of Minneapolis. Dr. Kennedy heartily thanked the women for their concentrated efforts which netted baskets and baskets of supplies—as he said, “Literally one and one-half tons!” Incidentally, this same committee of women hopes in the near future to canvass the medical offices in the outlying districts of the city. Dr. O. W. Wangenstein, Minneapolis, is state chairman of the Medical and Surgical Relief Committee of America.

After the program of the afternoon, tea was served under the direction of Mrs. Ernest Meland assisted by Mmes. Robert Karon and Johannes Moen. Mmes. Frank Bryant and C. N. Spratt acted as hostesses.

Nicollet-Le Sueur

The Auxiliary held a dinner meeting at the Nicolle Hotel in St. Peter, Minn., Wednesday, February 11. A business meeting preceded the evening's program.

Rice

Rice County Auxiliary reports that meetings are held the fourth Tuesday of each month at the home of one of its members. The attendance ranges from fourteen to eighteen members and the program for the year thus far has included a nutrition talk and one on Public Health and its achievements. Special projects engaged in are knitting and sewing for the Red Cross.

STATE AND NATIONAL NEWS

State Board Meetings

The State Board Meeting of the Auxiliary will be held in Minneapolis about the middle of March. This will be shortly before Easter and it is hoped a large number of women from the state will be able to attend.

National Meeting

Haddon Hall will be the headquarters for the annual meeting of the Woman's Auxiliary to the American Medical Association, which will be held in Atlantic City, New Jersey, June 8-12, 1942. Requests for reservations should be sent immediately to Haddon Hall, Atlantic City, New Jersey.

Deepest sympathy of the State Auxiliary is extended to Mrs. W. W. Moir, Minneapolis, Minnesota, in the loss of her husband, Dr. W. W. Moir.

An x-ray of Gainsborough's famous painting “Blue Boy” at the Henry E. Huntingdon Art Library, San Marino, Calif., revealed the lower half of a man's head, front face; the artist apparently began another portrait, then quit.

If every driver would reduce his average speed by 10 miles an hour he would get about 6,300 extra miles out of his tires, according to a major rubber company.

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OF GENERAL INTEREST

Dr. Theodore J. Keskey has been named school physician for the Mountain Iron school.

* * *

Dr. George F. Brooks of Stillwater has given up his offices for the time being on account of poor health.

* * *

Dr. and Mrs. D. Kalinoff of Stillwater left January 28 for Biloxi, Miss., where they will spend the rest of the winter.

* * *

Dr. H. T. Sherman, who has been practicing in Nerstrand, has moved to Kasson where he has opened offices.

* * *

Dr. Otis S. Marsh of Minneapolis has become associated with Dr. W. E. Macklin of Litchfield in the practice of medicine.

* * *

Dr. M. P. Virnig of Wells served as chairman of the Faribault County committee for the celebration of the President's Birthday.

* * *

Dr. Roscoe E. Conklin, a resident in medicine at Minneapolis General Hospital, is with the diabetic hospital service of the Mayo Foundation, Rochester.

* * *

Dr. Willard L. Burnap of Fergus Falls was elected secretary of the National Conference on Medical Service, held in Chicago, February 15.

* * *

Dr. Lillian L. Nye, Saint Paul, has received her life membership certificate in the American College of Physicians, dated October 15, 1941.

* * *

Dr. Wayne S. Hagen of Minneapolis is Chief of the Medical Service of the United States Army Station Hospital at Fort Hamilton, New York.

* * *

Dr. Chester Clark, who has been located at Browns Valley for the past year, has closed his office there and has moved to Cottonwood where he will continue his practice.

* * *

Dr. O. K. Behr, who has been at Minneapolis General Hospital taking advanced work in urology, has resumed his practice with the Crookston Clinic in Crookston.

* * *

At a recent meeting of the staff physicians of Itasca Hospital in Grand Rapids, Dr. F. M. Jolin of the Jolin, Jolin & McKenna Clinic, Bovey-Grand Rapids, was named chief of staff.

* * *

Dr. O. B. Fesenmaier, who has offices in New Ulm, has established a part-time office in Hanska. He will continue to maintain his practice in New Ulm where he has been located since 1937.

Dr. Leo G. Rigler, head of the radiology department at the University of Minnesota Medical School gave the Carman lecture before the St. Louis Medical Society in St. Louis, Missouri, February 24.

* * *

Dr. Thomas J. Edwards of Saint Paul, formerly with offices in the Hamm building, opened new offices March 1 at 330 Lowry Medical Arts Building. His practice is limited to medical and surgical care of the eyes.

* * *

Orders for Drs. Morris E. Freedland of Minneapolis and Dr. Lester E. Frogner of Grand Marais, both first lieutenants, to report for active duty with the United States Army Medical Corps have been revoked.

* * *

Dr. Clarence M. Larson has been named chief of staff at Swedish Hospital in Minneapolis. Dr. Elmer F. Lundquist was elected vice president; Dr. Charles R. Drake, treasurer; and Dr. Roy A. Lundblad, secretary.

* * *

Dr. John L. McKelvey, head of the department of obstetrics and gynecology at the University of Minnesota Medical School, will be a guest speaker at the meeting of the Iowa State Medical Society in Des Moines, April 16.

* * *

Dr. Raymond D. Manchester, who has been located in Park Rapids, left Minnesota, February 15, for Los Angeles to continue his practice of medicine. Dr. and Mrs. Manchester visited relatives in Minneapolis for two weeks before going to California.

* * *

Dr. H. G. Rice of Moorhead was elected president of the Medical staff of St. Ansgar Hospital in Moorhead at the recent annual meeting. Dr. S. B. Seitz of Barnesville was named vice president, and Dr. V. D. Thysell, Hawley, secretary-treasurer.

* * *

Among speakers at the fifty-seventh annual session of the Mid-South Post Graduate Medical Assembly held in Memphis, Tennessee, February 10-13, was Dr. John de J. Pemberton of Rochester whose topic was "Malignant Lesions of the Colon and Rectum."

* * *

Appointment of Ruth E. Grout, Ph.D., as assistant professor of preventive medicine and public health at the University of Minnesota, is announced. Dr. Grout, who has been engaged in health education work with the TVA, will join the staff next fall.

* * *

The marriage of Dr. Joseph E. Murphy of Marshall and Miss Aida B. Fedrizzi of Coleraine took place February 7 in Coleraine. Dr. and Mrs. Murphy are at home in Marshall where Dr. Murphy is associated with Dr. W. W. Yaeger in the practice of medicine.

Re-elected chief of staff of Eitel Hospital in Minneapolis at the annual meeting was Dr. Gilbert J. Thomas. Dr. Charles Hallberg was named assistant chief and Dr. Alton Olson, secretary. Dr. F. E. Harrington spoke on the responsibility of the hospital staff in civilian defense.

* * *

Dr. Gilbert Thomas of Minneapolis was in Chicago, February 13, 14 and 15, for the examinations of the American Board of Urology, of which he is secretary. He also attended the meeting of the Council on Medical Education and Hospitals of the American Medical Association, February 16, and a meeting of the advisory board of medical specialties.

* * *

The Foundation Prize, consisting of a cash award of \$150, is offered this year by the American Association of Obstetricians, Gynecologists and Abdominal Surgeons. Those eligible are interns, residents or graduate students, and physicians devoting themselves to this specialty. Those interested may address Dr. James R. Bloss, 418 Eleventh Street, Huntington, West Virginia.

* * *

In January last the Japanese attacked Changsha and occupied the Yale-in-China campus as headquarters. Chinese artillery fire and guerilla warfare to the rear of the Japanese lines forced the Japanese to retreat. As they left the campus they set fire to some of the buildings. Though heavily damaged, the hospital was not a complete loss.

* * *

Twin Citians who attended the meeting of the Travel Club of the Central Association of Obstetricians and Gynecologists in Milwaukee, February 14 and 15, were Dr. John L. McKelvey, head of the department of obstetrics and gynecology at the University of Minnesota Medical School; Dr. Claude J. Ehrenberg of Minneapolis; and Dr. E. C. Hartley of Saint Paul. The Marquette University Medical School was host.

* * *

Major Sam Seeley of Chicago, executive officer of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians, visited in Minneapolis February 18 and 19. In his honor an informal luncheon was held on the University of Minnesota campus. He is a graduate of the University of Minnesota Medical School '27.

On the evening of February 19, he gave a Mayo Foundation lecture at Rochester.

* * *

Dr. A. R. MacLean of Rochester, a lieutenant in the naval reserve specialist unit, has been called to active duty. He left February 15 for Great Lakes, Illinois, where he will be stationed at the Great Lakes Naval Training Station.

Dr. James P. O'Keefe of St. Cloud has also been called to active duty as lieutenant (junior grade) in the United States Naval Reserve. He has been resident obstetrician at Norwood Hospital in Birmingham, Alabama.

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MINNEAPOLIS

OF GENERAL INTEREST

Among new fellows in the Mayo Foundation at Rochester are:

Dr. Bernard L. Kreilkamp of Princeton, Wisconsin, and Dr. Earl M. Anderson and Dr. Dexter E. Guernsey of Minneapolis, all graduates of the University of Minnesota Medical School and interns at Minneapolis General Hospital from July, 1940, to January, 1942.

Dr. Robert A. Murray of Parkers Prairie, graduate of University of Minnesota Medical School '39. He was intern and resident at San Diego County General Hospital from July, 1939, to July, 1941. Since that time he has been in practice with Dr. A. J. Lewis in Henning, Minnesota.

* * *

Dr. R. M. Rosenwald is the new chief of staff of St. Barnabas Hospital in Minneapolis, succeeding Dr. W. G. Schaefer. Other officers named at the recent annual meeting of the medical staff are: Dr. E. J. Lillehei, vice chairman; Dr. Joseph F. Spano, secretary-treasurer; Dr. William Roberts, executive committee chairman.

Charles Bolles Rogers, president of the board of trustees, spoke on the hospital's educational program for medical staff and interns.

* * *

The General Staff of the United States Army has approved the suggestion of the Surgeon General to commission pre-medical students who have been accepted for admission to medical school and first and second year medical students, as Second Lieutenants in the Medical Administrative Corps in exactly the same

manner as the third and fourth year medical students are now being commissioned.

The Secretary of the Navy has also approved a change in regulations whereby it is now possible for pre-medical students who have been accepted for entrance, and all medical students in Class "A" Medical Colleges, to be appointed in the United States Naval Reserve in Class H-V (P) provided they meet physical and other requirements for such appointments.

* * *

Dr. Fred W. Rankin of Lexington, Kentucky, and formerly of Rochester, has been appointed chief consulting surgeon of the United States Army. Dr. Rankin, president-elect of the American Medical Association, was assistant surgeon at St. Mary's hospital in Rochester from 1916 to 1923. From 1926 to 1933 he was a surgeon at the Mayo Clinic and associate professor of surgery in the University of Minnesota Medical School.

In World War I he was in command of a base hospital in France and was discharged with the rank of major. His new appointment carries the rank of colonel.

Dr. Rankin is the son-in-law of the late Dr. Charles Mayo.

* * *

Dr. W. Randolph Lovelace of Rochester, surgeon in the Mayo Clinic and president-elect of the Aero Medical Association, has been appointed director of research and consultant in surgery for the United States army air force in the office of the air surgeon. He reported

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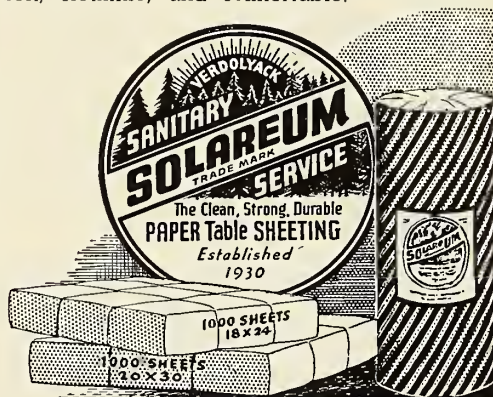
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for active duty in Washington, D. C., on February 16.

A major in the medical reserve corps of the army, he will hold that rank in his new position which will be in the office of Colonel D. N. W. Grant, the air surgeon. He will direct all aero-medical research for the army air forces and will consult in surgery.

Dr. Lovelace and Walter W. Finke of Minneapolis, state director of social welfare, were honored at a testimonial dinner in Rochester, February 6, on their recent selection by the United States Chamber of Commerce as two of the ten outstanding young men in the nation in 1941. Scrolls attesting the honor were presented to them by Governor Harold E. Stassen.

* * *

Representatives of the newly established National Proctologic Certification Committee include Dr. Walter A. Fansler of Minneapolis, vice chairman; and Dr. Louis A. Buie of Rochester. Dr. Louis J. Hirschman of Detroit, Michigan, is chairman.

The committee was established under the sponsorship of the Section on Gastro-Enterology and Proctology of the American Medical Association, the Section on Proctology of the Southern Medical Association, the American Proctologic Society and the Mid-West Proctologic Society. The committee will co-operate with the American Board of Surgery in passing on the qualifications of applicants who desire certification in proctology, and will have charge of that portion of the examination of these applicants covering the diseases and surgery of the colon, rectum and anus.

Dr. Harold S. Diehl of Minneapolis, dean of medical sciences at the University of Minnesota, addressed two meetings in Chicago last month. On February 15, he spoke before the sixteenth annual meeting of the National Conference on Medical Service (formerly the Northwest Regional Conference) on the subject, "What the Medical, Dental and Nursing Schools May Do to Hasten the Graduation of Their Respective Students."

On February 16, he addressed the thirty-eighth annual Congress of the Council on Medical Education and Hospitals of the American Medical Association. His subject was "The Role of Medical Schools in the War." Dr. Diehl is a member of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians of the Office of Defense, Health and Welfare Services.

* * *

Selection of commissioned personnel for the First Medical Battalion, Minnesota Defense Force, has been announced by Major General Ellard A. Walsh, state adjutant general.

Recruiting of 236 enlisted men to complete the organization is now under way.

Battalion headquarters will be in Rochester with Dr. Andrew B. Rivers of the Mayo Clinic as commanding officer with the rank of lieutenant colonel in the medical corps.

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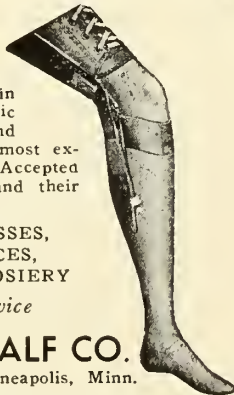
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Executive Office, Rochester: Captain John H. Mitchell.

Ambulance Company, Winona: Major Irving W. Schreiner, assisted by Captain Henry Roemer and Captain George L. Loomis.

* * *

A program of instruction in the Kenny method is being arranged as the result of a recent conference in Minneapolis, in which Basil O'Connor, president of the National Foundation for Infantile Paralysis, and Don W. Gudakunst, medical director, consulted with medical authorities at the University of Minnesota and with Miss Elizabeth Kenny and her staff.

Three groups will be afforded training at an early date:

1. Physicians in charge of special programs, such as directors of schools of physiotherapy, orthopedic surgeons and those in charge of contagious disease hospitals.

2. Physiotherapists in charge of either teaching programs or larger organizations.

3. Nurses in contagious disease hospitals or other institutions where there are either teaching programs or larger groups of poliomyelitis patients being treated.

Facilities at the University of Minnesota Medical School are limited, and the number of trainees who can be admitted must depend on the number of patients in early stages of infantile paralysis in Minneapolis hospitals, as it is only early stages that are treated by the Kenny method.

* * *

Dr. Philip F. Eckman was named chief of staff of St. Mary's Hospital in Duluth, succeeding Dr. W. C. Martin, February 5, at the annual meeting. Dr. F. N. Knapp is the chief-elect.

Dr. J. S. Spang was elected secretary; Dr. C. M. Smith, chief of medicine; Dr. E. Z. Shapiro, chief of urology; Dr. A. O. Olson, chief of eye, ear, nose and throat; Dr. F. J. Elias, chief of orthopedics; Dr. E. L. Tuohy, chief of laboratories, and Dr. F. J. Hirschboeck, chief of neurology.

Guest speaker was Dr. M. Fernan-Nunez, professor of pathology at Marquette University Medical School in Milwaukee. His talk, "A Medical Travelogue on Spanish America," was illustrated with colored lantern slides and motion pictures. Dr. Fernan-Nunez predicted that with the return of American soldiers from service in tropical lands and southern encampments, tropical diseases would become a considerable problem of medical practice in northern latitudes.

Dr. W. A. Coventry paid tribute to the late Rev. Fr. C. B. Moulinier, S. J., founder of the Catholic Hospital Association, who died in 1941, and unveiled a picture of the priest. This was followed by a tribute paid to Dr. A. E. Walker, member of the hospital staff

for fifty-one years, and the unveiling of his picture by Dr. W. J. Ryan.

* * *

Staff members of the United States General Hospital Unit No. 26 ordered to Fort Sill, Oklahoma, for a raining period before being sent overseas for duty, are presented here. Several members of the staff are waiting orders to join the unit.

Now in Fort Sill are:

Commanding Officer—Lt. Col. F. V. Kilgore.
Sanitary Officer—Theodore Olson, first lieutenant.
Mess Officer—Robert M. Barr, Major, M. C.
Receiving Officer—Gordon C. MacRae, Major, M. C.
Registrar—Albert Hayes, first lieutenant, M. C.
Assistant Medical Supply Officer—Norman O. Holte, second lieutenant, M. A. C.

Medical Service—Joseph F. Borg, lieutenant colonel; Reuben Erickson, major; Douglas P. Head, major; Philip Hallock, major; Samuel A. Weisman, major; Harvey Beek, major; Theodore J. Bulinski, captain; William H. Hollinshead, captain; Robert E. Johnson, captain; Russell C. Lindgren, captain; Stanley W. Lundblad, captain; Lawrence M. Nelson, captain; David M. Craig, first lieutenant; Robert A. Green, first lieutenant; John R. Haserick, first lieutenant; Charles G. Polan, first lieutenant; Vern C. Strough, first lieutenant, and Rodney F. Sturley, first lieutenant, all of the Medical Corps.

Surgical Service—L. Haynes Fowler, lieutenant colonel; Edward T. Evans, major; Jerome A. Hilger, major; John R. Paine, major; A. G. Plankers, major; Wallace P. Ritchie, major; George S. Bergh, captain; Meyer Z. Goldner, captain; Conrad J. Holmberg, captain; Karl E. Sandt, captain; Leonard Itrud, captain; Lyle French, captain; Lyle Hay, captain; Herman Koschnitzke, first lieutenant; Richard E. Reilley, first lieutenant; Baxter A. Smith, first lieutenant; Vincent Swanson, first lieutenant; Arnold Kremen, first lieutenant; Frederick B. Mears, first lieutenant; Dr. G. Howard Hall, first lieutenant, all of the Medical Corps.

Laboratory Service—Robert Hebbel, major; Evrel Larson, captain, Medical Corps.

Dental Service—Earle W. Nelson, major; Charles Peterka, captain; Harold G. Worman, captain; Lyle A. Brecht, first lieutenant; Virgil R. Ohlen, first lieutenant, and Anthony J. Scholtis, first lieutenant, Dental Corps.

Officers and nurses of the unit were honored at a dinner at the Coffman Memorial Union, February 10. Nearly 1,000 persons attended. Dr. W. A. O'Brien was master of ceremonies.

Dr. H. S. Diehl, dean of medical sciences, spoke on the organization of the unit and the personnel of sixty medical and dental officers and 125 nurses (the latter have the rank of second lieutenant in this war).

Miss Cecelia Hauge, superintendent of nurses at the University Hospitals, who heads the nurses' unit, introduced the hundred or more nurses present who had been recruited from the Red Cross Reserve.

President W. C. Coffey, in his talk, mentioned the loss of faculty members who had entered the service. Dr. E. E. Novak of New Prague represented the Board of Regents.

Major General E. A. Walsh addressed the gathering in the absence of Governor Stassen. He described the hardships which are expected, but pointed out that the satisfaction of service would be worth the hardships. Dr. S. Marx White told of some experiences of the University Base Hospital No. 26 in World War I, and announced the collection of a fund of \$2,100, raised by a special committee which included members of the former Base Hospital No. 26, the sum to be at the disposal of the commanding officer of the hospital unit or unlooked for exigencies.

Mrs. Arthur Law, whose husband commanded the former University Base Hospital No. 26, then presented the new unit with a United States flag, signifying the carrying on of the spirit of the former unit by the new. Lieutenant Colonel L. Haynes Fowler closed the meeting by expressing the unit's determination to carry on.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

DISEASES OF WOMEN. Harry Sturgeon Crossen, M.D., F.A.C.S., and Robert James Crossen, A.B., M.D. 9th ed. 948 pages. Illus. Price, \$12.50. St. Louis: C. V. Mosby Co., 1941.

The ninth edition of this valuable book is a worthy successor to the previous editions. This work has been regarded as an authoritative text on gynecology for over thirty years.

This book is in no sense an operative gynecology and does not purport to be such. Great stress is laid upon the physiologic aspects of the specialty; diagnosis and treatment are particularly well covered.

The latest developments in endocrinology are well discussed. This subject, instead of being delegated to one chapter, is covered in different portions of the work relating to the organ under discussion.

There are many beautiful colored illustrations which are new, as well as a large number of black and white drawings.

The whole subject is well covered and there is a chapter on diseases of the anorectal region as well as one on mediocolegal points.

The book as a whole is very well written and planned. It is easy to read and should be on the "must" list for any gynecologist.

J. R. MANLEY, M.D.

CARDIAC CLINICS. Fredrick A. Willius, B.S., M.D., M.S. (in Med.). 276 pages. Illus. Price, \$4.00. St. Louis: C. V. Mosby Company, 1941.

This interesting and compact 267-page monograph from the Mayo Clinic does indeed make stimulating reading. These informal chats covered in few pages drop plenty of nuggets for those physicians who do general practice and want to intelligently treat their patients afflicted with heart disorders. Internists themselves can learn much from its meaty pages. There are many books written about the heart but this book, it would seem, finds its greatest merit in its practicability.

The book is divided into fourteen chapters. It is well indexed. The first chapter, for instance, is devoted to the "Signs and Symptoms" of heart disorders. Succeeding chapters are devoted to "Diseases of the Pericardium," "Rheumatic Heart Disease," "Bacterial Endocarditis," etc. Phases of disorders of the heart and treatment are briefly but adequately discussed in typical clinic fashion. In the latter chapters, XIII and XIV, entitled "Historic Excerpts" and "Miscellaneous Topics," much of interest is divulged as well as apt treatment given of certain of the homely bits of philosophy in the practice of medicine. This always makes for pleasant reading for the younger doctor.

In a very readable and easy manner, these clinics usually begin with a short history of the case, results of the examination, and later a discussion revealing the instructive elements in each case. Questions and their answers are often included. The style is intimate and clear. The volume is well illustrated with clinical records, electrocardiograms, and pathologists' specimens.

This monograph, as is stated in its foreword, is a compilation of previously published Cardiac Clinics from the "Proceedings of the Staff Meetings of the Mayo Clinic." Many readers of the "Proceedings" will recognize the cases from that source. They are now made available for more ready reference.

SIMON G. SAX, M.D.

MANUAL OF CLINICAL CHEMISTRY. Miriam Reiner, M.Sc., Assistant Chemist to The Mount Sinai Hospital, New York. Introduction by Harry Sobotka, Ph.D., Chemist to The Mount Sinai Hospital, New York. With 18 illustrations. 296 pages. Price, \$3.00. New York: Interscience Publishers, Inc., 1941.

Starting as a mimeographed syllabus of a few directions for interns for emergency procedures this book has more than doubled in bulk within the last ten years. The methods are presented with brevity, conciseness, accuracy, simplicity and in an appealing form. The most recent reference is given for the various procedures, and with The Mount Sinai Hospital modification in some cases. The tables, the standardization of solutions, and the normal values presented are invaluable. It is recommended by the reviewer that so time saving a manual be revised frequently.

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DIABETES. Practical Suggestions for Doctor and Patient. Edward L. Bortz, A.B., M.D., F.A.C.P., Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania; Chief of Medical Service B, The Lankenau Hospital, Philadelphia; Assistant Editor, The Cyclopedia of Medicine. Second Edition Revised and Enlarged. 296 pages. Price, \$2.50. Illus. Philadelphia: F. A. Davis Co., Publishers, 1940.

Dedication: "In Memory of My Father."

In his Foreword, Dr. George Morris Piersol has aptly written, "His efforts are worthy of success and his text should be welcomed alike by patients, physicians, dietitians, nurses and all who are interested in the farflung problem of diabetes." The reviewer seconds Dr. Piersol's recommendation.

LILLIAN L. NYE, M.D.

ESSENTIALS OF DERMATOLOGY. Norman Tobias, M.D., Senior Instructor in Dermatology, St. Louis University, St. Louis. Pp. 497, with 143 illustrations. Cloth. Price, \$4.75. Philadelphia, Montreal and London: J. B. Lippincott Company, 1941.

Tobias presents a compact book of approximately 500 pages dealing with the essentials of dermatology with special reference "as far as is practical" to the relationship of dermatology and internal medicine. The book opens with a basic survey which includes material pertaining to history taking, etiologic factors, exciting causes, general diagnosis, special diagnostic methods, and a brief discussion of the functions, anatomy and pathology of the skin.

Including the basic survey there are thirty-two chapters, dealing with the erythema group, eczemas, drug eruptions, psoriasis, bullous diseases, pyodermas, paraitic diseases, virus diseases, lichen planus, diseases due to psychic disturbances and physical agents, deep infective dermatoses, tuberculosis, syphilis, tumors, metabolic dermatoses, pigmentations, erythmodermas, diseases of the appendages, scalp and mucosæ. There is one chapter devoted to dermatologic therapeutics.

The accepted modern concepts in dermatology are incorporated and the literary style is good. The 138 half-tone illustrations are excellent. The paper on which the book is printed is good and the type is clear and legible. The book should be of definite value for ready reference for the practitioner and especially the student.

CARL W. LAYMON, M.D.

FIRST AID IN EMERGENCIES. Eldridge L. Eliason, M.D. 260 pages. Illus. Price, \$1.75. Philadelphia: J. B. Lippincott Co., 1941.

This is a very concise and complete little volume which is easy to read; understandable and simple. It is obviously written for the layman but many of the facts ordinarily sufficient for lay purposes are supplemented with further emergency treatments which are to be used only if a physician is not available. (This applies particularly to the reduction of some common dislocations.) This makes it a handy book to keep available in the car or on the person in isolated places.

I believe that the addition of the chapter concerning common contagious diseases together with a discussion of known facts in regard to their transmission and more usual symptoms in this first aid manual, is a very worth-while feature.

S. A. PATTERSON, M.D.

INFANT NUTRITION. A Textbook of Infant Feeding for Students and Practitioners of Medicine. W. M. Marriott, M.D., and P. C. Jeans, M.D. Third Edition, 475 pages. Illus. Price, \$5.50. St. Louis: C. V. Mosby Company, 1941.

This book continues to be a thorough, up-to-date treatise on infant feeding. It is easily understandable, at the same time comprehensive in scope, and may well serve as an excellent reference volume for students, general practitioners, and pediatricians alike. Dr. Jeans, who edits the book for the first time, has succeeded in incorporating his own views into the subject matter without sacrificing any of its outstanding simplicity.

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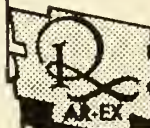
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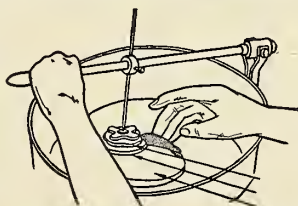
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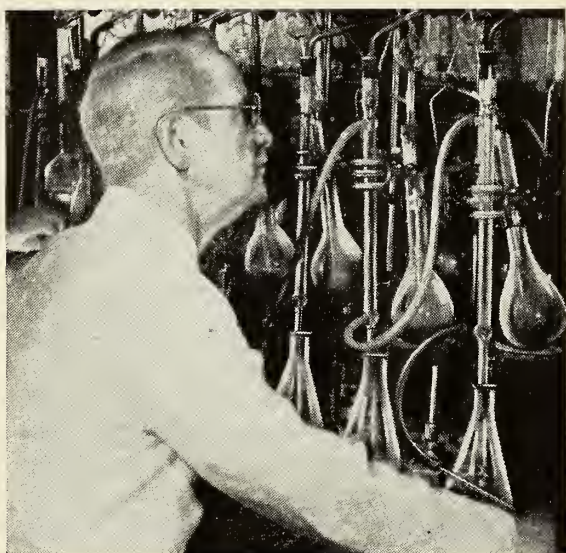
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Brückner, H—Die Biochemie des Tabaks, 1936

***The Military Surgeon*, Vol. 89, No. 1,
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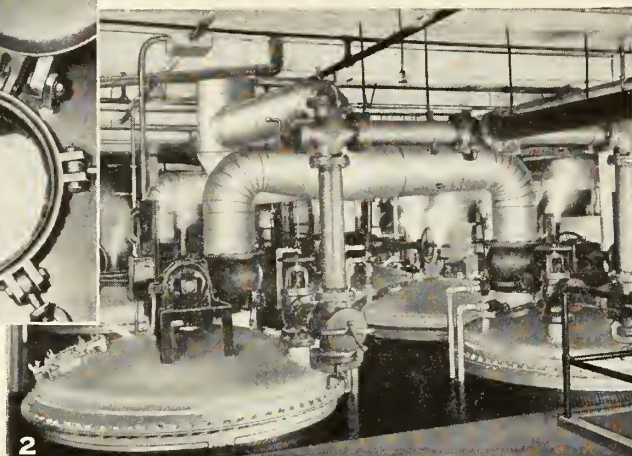
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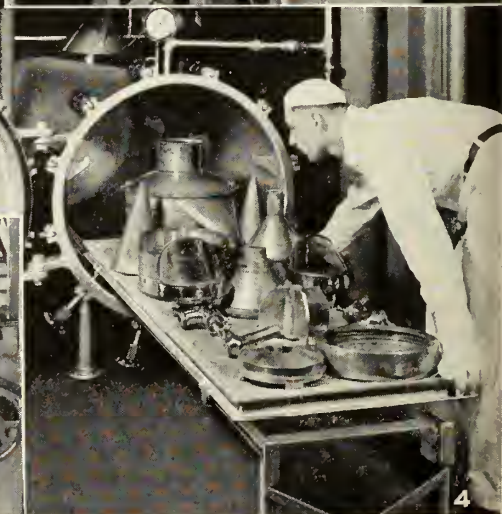
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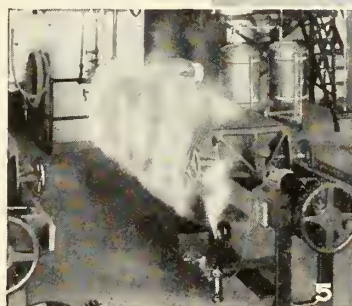
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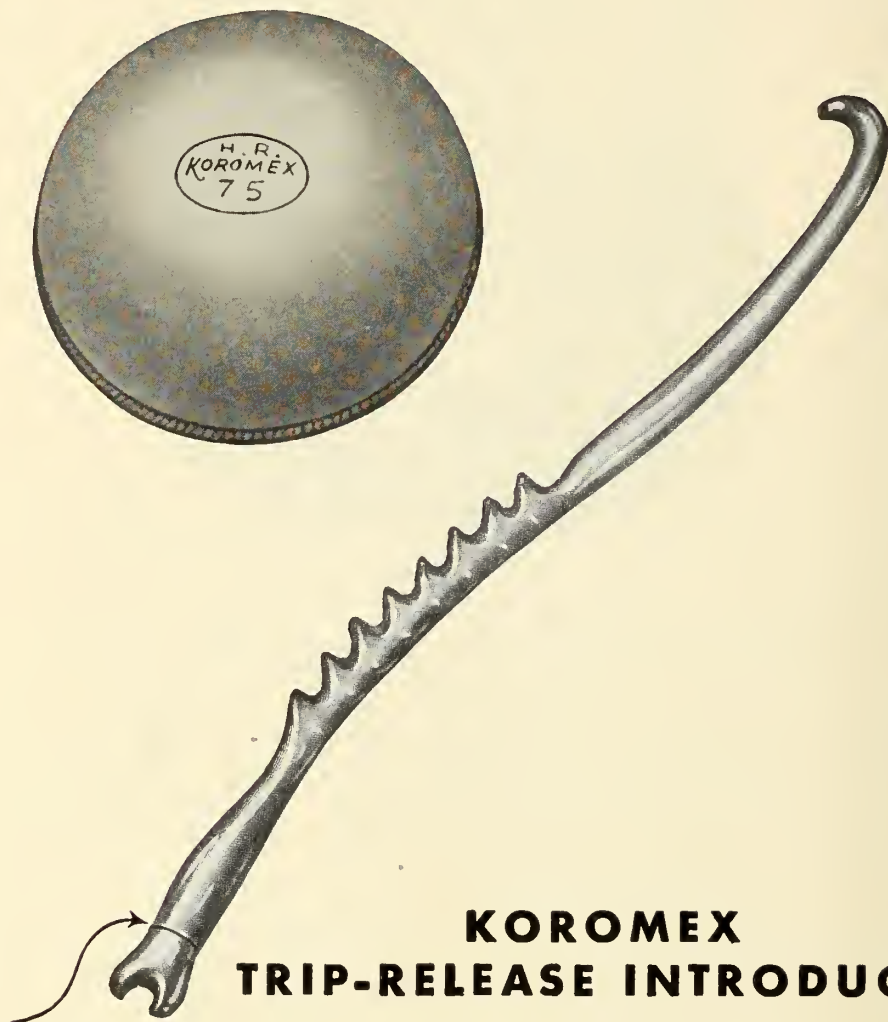
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- (1) 1939. Agr. Expt. Sta. Univ. Wisconsin, Bul. 444.
1939. Univ. Maryland Agr. Expt. Sta. Bul. 425.
1937. U. S. Dept. Agr. Farmers Bul. 1253.
1937. Univ. Illinois Agr. Expt. Sta. and Extension Service in Agr. and Home Econ. Circular 472.
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MEDICAL CAUSES OF REJECTION IN SELECTIVE SERVICE REGISTRANTS

C. A. McKINLAY, M.D.
Minneapolis, Minnesota

THE nature of physical causes of rejection for military service has important implications not only from the viewpoint of the state of preparedness of the nation but also from that of disease tendencies in relation to the practice of medicine and to preventive medicine. Considerable discussion has taken place with regard to causes of physical disability in registrants, sometimes with emphasis upon supposed inadequacy of medical care.

It is with considerable interest that analysis has been made of the records of registrants examined by the writer as a member of the Medical Advisory Board of Hennepin, Sherburne, Scott, Wright and Carver counties, District I, comprising urban as well as rural communities. This represents only a small sample with limited value compared to total summaries. Of 209 men consecutively examined who were recommended for rejection or placement in limited service classification it is to be noted that the conditions responsible fell within the field of internal medicine and, therefore, that visual, dental, orthopedic defects and hernia which predominate as total causes of rejection are not included herein. Each individual had received his initial examination by a practicing physician who had volunteered to give this service in his office according to the intent of the selective service regulations. Special laboratory examinations including electrocardiograph and determination of the basal metabolic rate and sugar tolerance have been done only when indicated.

It is seen (Table I) that disorders of the cardiovascular system lead as a cause of rejection and, of these, hypertension and neurocircula-

tory asthenia are most common. Sustained elevation of blood pressure of 150 mms. of Hg systolic or 90 diastolic on two or more observations was the criterion. Attempt was made to reduce to a minimum by rest periods the immediate exciting factor of physical examination, an unusual event for a majority of these individuals. No renal or other somatic causes were demonstrated in the hypertensive group. It appears that the present group, compared to those of effort syndrome described by Lewis⁶ in 1920, have a greater tendency to hypertension either with or without tachycardia.

TABLE I

	Number of cases	Per cent of total
Total number rejected.....	209	
Causes of rejection:		
Total cardiovascular	132	63.1
Neurocirculatory asthenia	55	26.3
Hypertension without tachycardia...	32	15.3
Hypertension with tachycardia.....	23	11.0
Organic heart disease.....	22	10.5

Lewis⁶ emphasized poor reaction to exercise with retarded return of pulse rate to normal; also pulse rates at rest often between 80 or 90 were described sometimes with elevation of systolic blood pressure. Cases with vagosympathetic imbalance or neurocirculatory asthenia, when marked in degree, were rejected according to established standards. Persistent sinus tachycardia was one criterion used in this group although in others evidences of vasomotor instability were difficult to evaluate.

In the group reported upon, the response of the heart rate to a given amount of exercise has not provided critical information because no constancy of physical effort or nervous factors

Presented before the Minnesota Society of Internal Medicine, October 25, 1941.
APRIL, 1942

obtain in exercise tests available under the circumstances of these examinations. While such tests may give a rough estimate as to physical fitness, little of value was obtained in regard to cardiac diseases that was not apparent from other sources. As Smith⁸ mentions, the response

TABLE II

	Number of cases	Per cent of total
<i>Organic heart disease</i>	22	10.5
Chronic valvular disease.....	15	7.1
Congenital defects	2	
Cardiac hypertrophy	2	
Myocarditis	1	
Paroxysmal auricular flutter.....	1	
Paroxysmal auricular tachycardia..	1	
<i>Gastro-intestinal disease</i>	39	18.6
Duodenal ulcer	36	17.2
Severe functional disturbances.....	2	
Ulcerative colitis	1	

of an individual with chronic valvular heart disease to exercise tolerance tests may be good whereas that of a normal individual who has led a sedentary life is poor. Often the problem has first centered around elimination of the immediate exciting factor of the examination. Individuals with tachycardia, that is, 100 or over, and hypertension have had a period of recumbent rest for twenty to thirty minutes. This represents the standard basal rest period with reduction of nervous and emotional factors. Observations of pulse rate and blood pressure when these were elevated were made frequently on another day. Cases with persistent tachycardia, over 100, under these circumstances of complete rest have added significance and were considered cause for rejection.

Organic heart disease caused 10.5 per cent of rejections with chronic valvular disease its most common manifestation. In certain instances, particularly the arrhythmias, electrocardiographic study was done at the time of the examination or previous records, obtained through the courtesy of the registrants' physicians, were interpreted and established one instance of paroxysmal auricular flutter and another of paroxysmal auricular tachycardia. In others absence of important findings were noted.

The most common somatic disease found with demonstrable lesion was duodenal ulcer occurring in 17.2 per cent (Table II). The diagnosis was established after study by the roentgenologist in thirty-three cases and was suggested by the clinical history in 73 per cent of cases and was

consistent with symptoms in the remainder. The duration of symptoms varied from six months to twelve years. The comparative frequency of duodenal ulcer found is in keeping with the recent experience in the British forces of similar age group reported by Payne and Newman.⁷

TABLE III

	Number of cases	Per cent of total
Other causes of rejection or limitation of service.....	35	16.7
Hyperthyroidism	16	7.6
Asthma and hay fever.....	5	
Nephritis and nephrosis.....	4	
Diabetes mellitus	3	
Diabetes insipidus	1	
Osteomyelitis	1	
Below minimum height.....	1	
Alcoholism with neuritis.....	1	
Hyperinsulinism	1	
Renal calculus	1	
Pulmonary tuberculosis	1	

They found that 14 per cent of evacuated cases had peptic ulcer. Of a sample of 287 gastro-intestinal cases 89 per cent had gross disease, almost all ulcers, the majority of which were duodenal. In 92 per cent of the individuals they were present before the war. These observers considered that the most important factor leading to symptoms is in the change from a relatively strict diet to army food. *The Lancet*⁹ stated editorially that from several points of view peptic ulcer was the most important medical problem of the current war.

The diagnosis of hyperthyroidism was made in 7.6 per cent and established by the clinical picture and increased basal metabolic rate. Asthma and hay fever, nephritis and diabetes mellitus were less frequent causes of rejection or of limitation of service (Table III). A report of causes of rejection throughout the state, furnished through the courtesy of Colonel R. B. Hullsiek,⁵ Medical Officer State Selective Service Headquarters, contains total figures only for cardiovascular and gastro-intestinal causes whose ratio was approximately seven to one. This compares with that of three to one herein reported of total number of cardiovascular causes compared to duodenal ulcer. This variation may be explained in part by greater facilities for gastro-intestinal roentgen ray examination available in this district.

The infrequency of infectious diseases including pulmonary tuberculosis raises the question of the adequacy of the means available for case

detection. Undoubtedly the ideal method would include a roentgen film of each registrant as a part of the initial examination as is done in certain areas. In the cases herein reported whenever history or physical signs have suggested possible pulmonary disease a film of the chest has been made (71 cases). In one instance were shadows suggestive of fibroid pulmonary tuberculosis found by the roentgenologist; in another bronchopneumonia was found which cleared within a few weeks. It would appear that the possible chance of oversight of pulmonary tuberculosis in this group has not been great.

It is seen upon analysis that preventable communicable disease was rare in this group. Chronic valvular disease, the chief organic disease found other than duodenal ulcer, is not at this time a preventable disease. The emphasis placed upon nervous and emotional as well as nutritional factors as related to the origin and behavior of duodenal ulcer hardly places it at the door of medical neglect. Hofmeyr⁴ has called attention to the rarity of peptic ulcer in the primitive South African and quotes Eagle and Gilman, who on the basis of combined statistical studies of necropsy material concluded that the average European was seven times more susceptible to peptic ulcer than the Bantu. Poor dietary habits indicative of nutritional deficiency sometimes present before onset of duodenal ulcer likewise have often economic and social rather than medical bearing. Hypertension likewise is relatively uncommon in the Orient according to common reports from physicians who have practiced there. If in addition to hypertension and neurocirculatory asthenia, duodenal ulcer is added to the general category of disease in which nervous and emotional factors are important in pathogenesis or course, it is seen that approximately 70 per cent of all rejections are included therein. It is interesting to note that Paul D. White⁹ discussing the 1938 report of the Surgeon General noted that neurocirculatory asthenia has been taken from the heading of circulatory disease and placed under diseases of the nervous system. Boynton and Diehl¹ in a survey of univer-

sity students subject to registration for the Selective Service noted that the large majority who were given restricted classifications because of physical defects had defects which were not correctible so far as army service was concerned.

Cannon² has emphasized the effects of the emotions on bodily functions and believes that the medical profession has not appreciated the influence of the nervous and emotional strain as a cause of disease and has not realized in a practical way the recent shift from the infections in the etiology of disease.

While realizing that any generalization with regard to diseases of unknown origin such as non-renal hypertension, neurocirculatory asthenia and duodenal ulcer is valueless, it is of interest that as leading causes of rejection they are characteristic of American and European civilization rather than that of peoples of more primitive living habits. The causes of rejection herein reported in no sense represent failure of the practice of medicine or of preventive medicine.

Summary

1. Essential hypertension (26.3 per cent) and neurocirculatory asthenia (26.3 per cent) were the chief causes of recommendation for rejection among 209 registrants disqualified or qualified for limited military service only. Preventable infectious diseases were rarely found.

2. The chief somatic disease found with demonstrable lesion was duodenal ulcer (17.2 per cent) followed in frequency by organic heart disease (10.5 per cent) and hyperthyroidism (7.6 per cent).

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INJURIES OF THE NOSE

CARL W. WALDRON, M.D., D.D.S.

Minneapolis, Minnesota

WOUNDS of the nose result from a great many forms of trauma and may present variations in the types of injury or loss of the skin and supporting bony and cartilagenous structures. Contusion and laceration may be very marked or slight, and the wound may be at right angles to the skin or oblique and undermined, exposing an extensive portion of the underlying tissues. Nasal injuries are frequently associated with fractures of the upper jaw, the malar bone, head injuries, or with other serious injuries that may receive active treatment before the wounds of the nose may be taken care of in a thoroughly efficient manner.

The immediate treatment should be directed towards the prevention and control of shock and hemorrhage if present. Bleeding into the throat with consequent respiratory obstruction in a severely depressed or partially conscious patient may be very serious and later pulmonary complications may ensue from the inspiration of blood, mucus, or foreign bodies into the lungs. Partially separated flap-like portions of the nose should be replaced and gently supported by gauze dressings to avoid undue pressure and possible interference with the blood supply of a nearly detached portion of the ala or tip of the nose.

The wounds should be cleansed of blood clots and debris, or any foreign bodies that may be present. For this purpose, soap and water and hydrogen peroxide have been found most useful. The wound margins should be retracted with fine skin hooks and all foreign bodies should be carefully removed in order to promote healing. Lacerated and contused skin margins may require conservative débridement, and the sharp excision of ragged edges will facilitate suturing and diminish the amount of scarring of the skin that will subsequently occur. Portions of contused skin may be found almost completely detached, necessitating excision to prevent loss of the affected skin from sloughing. Lacerated wounds of the nose, if extensive, may permit adequate inspection of the fractures of the underlying bony structures. The parts may then be reduced under visual control. One must resist

the temptation to remove partially separated fragments of bone and cartilage, for in practically every case they may be retained to aid in the healing and stabilization of the supporting structures. Those small pieces of bone sequestrate so rarely that their retention should be the rule.

The suturing of wounds of the nose should be undertaken with a due sense of responsibility regarding the ultimate scar and the contour of the external nose. Far too frequently, one sees such wounds closed with interrupted sutures of stiff dermal or even silk worm gut, using needles many times too large. If a surgeon finds it inconvenient to use the finest of suture material, such as Deknatel A threaded on arterial needles, he should keep on hand tubes of plastic sutures threaded on fine eyeless needles, or refer the patient to a surgeon who will close the lacerations in a proper manner. Careful subcuticular suturing is being used more and more by plastic surgeons because the sutures may be left in for ten days to two weeks in order to maintain the close approximation of the skin margins. Interrupted sutures of Deknatel A may then be used sparingly where needed for fine approximation, and removed in two or three days without producing stitch marks. A slightly heavier suture, Deknatel B, or fine horse hair suture is excellent for the subcuticular suturing. When the wound is of any considerable length, it is best to bring the suture out through the skin at intervals of three-fourths of an inch, and then reinsert the needle to continue the subcuticular closure. This facilitates the removal of the suture because it may be divided where it is exposed through the skin, and removed in short lengths. Care should be taken to secure all bleeding points that continue to ooze after clamping, by ligation with very fine catgut or silk, because a hematoma may seriously interfere with the healing of the parts. In undermined wounds with a number of fine bleeding points, ample drainage is essential. This may be secured by using a small strip cut from a Penrose drain or a strip of cellophane, to be removed in one or two days. A small vaseline strip of fine mesh gauze is then placed over the

wound, over which a pressure dressing is applied. Badly contaminated wounds should be insufflated with powdered sulfanilamide before suturing.

Actual loss of nasal skin should be restored by immediate skin grafting unless the wound is so obviously contaminated that efficient cleansing is unlikely to be successful, or where a surface of bone is exposed that cannot be covered by suturing the subcutaneous tissues. Full thickness grafts from the postauricular region are the most satisfactory from the standpoint of color and texture. They should be sutured in position under slight tension and maintained under moderate pressure by means of a dental wax or compound splint or a metal splint. When the graft is situated laterally at the base of the nasal bridge, efficient stabilization and pressure may be secured by leaving the marginal fixation sutures long and tying them over wax or a dental cotton roll. The dressings should be left undisturbed for a week or ten days unless the need for more efficient stabilization or pressure seems indicated. There can be no doubt that cosmetic results would be better if immediate skin grafts were employed more frequently in cases of traumatic loss of the nasal skin.

Fractures of the Nasal Bones

These fractures are probably the most commonly seen in practice, and it is to be regretted that all too frequently they do not receive the attention they deserve. This is due to a rather general disposition to consider nasal fractures and resultant cosmetic deformities as matters of minor importance together with the fact that the initial swelling of the adjacent soft tissues may disguise the presence of underlying fractures with displacement. The great advances in rhinoplastic surgery of the past decade have given surgeons a better understanding of underlying displacements and reasons for the deformities of the nose that result from the various types of nasal injuries. Consequently, many of the disfigurements that heretofore have been considered unavoidable are now known to be definitely amenable to treatment. One must guard against the temptation to neglect the fractured nose in children. Swelling, tenderness and the usual difficulties encountered in examining and treating children may make the diagnosis of fractures and displacements of the nasal bones and cartilaginous septum a matter of considerable difficulty. It is

a fact that both children and adults are much more appearance-conscious than formerly was the case and that noticeable nasal deformities assume considerable psychologic and economic importance in this competitive age.

Classification of Fractures of the Nose

(Modified from Safian and Tamerin)

I. Simple Fractures

- A. Fractures of the nasal bones and frontal processes of the maxillae.
 1. Linear fractures without displacement.
 2. Fractures with displacement and deformity.
 - a. Medial depression of one nasal bone and frontal process.
 - b. Lateral deviation, due to medial depression of one nasal bone and frontal process with lateral displacements of the bridge and the opposite nasal bone and process; also displacement of the nasal septum.
 - c. Depression of the bony bridge.
 - d. Widening of the bony bridge and bases of the nasal bones and frontal processes of the maxillae.
- B. Fractures of the nasal septum.
 1. Without deformity.
 2. With displacement and deformity.
 - a. Depression of the septum.
 - (1) Saddle nose.
 - (2) Dropped tip.
 - (3) Obstruction of respiration.
 - b. Deviation of the septum.
 - (1) Without external deformity.
 - (2) With external deformity.
 - (a) Protruding septum.
 - (b) Deviation of alar cartilages.
 - C. Combined fractures of the nasal bones and the septum.

II. Compound Fractures—including Complicated Fractures.

Signs and Symptoms

Hemorrhage from the nasal cavities is present in most fractures of the nose. It may be slight in amount and cease spontaneously or may be profuse and continue to exsanguinate the patient unless promptly controlled and arrested. Bleeding may be from one side only if but one nasal bone is fractured and depressed. The bleeding is due to the rupture of the nasal mucous membranes by the bony fragments.

Ecchymosis and swelling result from the extravasation of blood into the subcutaneous tissues. This may be unilateral or bilateral and varies considerably in amount and position. The eyelids may be involved to a marked degree, and the extravasation may extend to the cheeks or

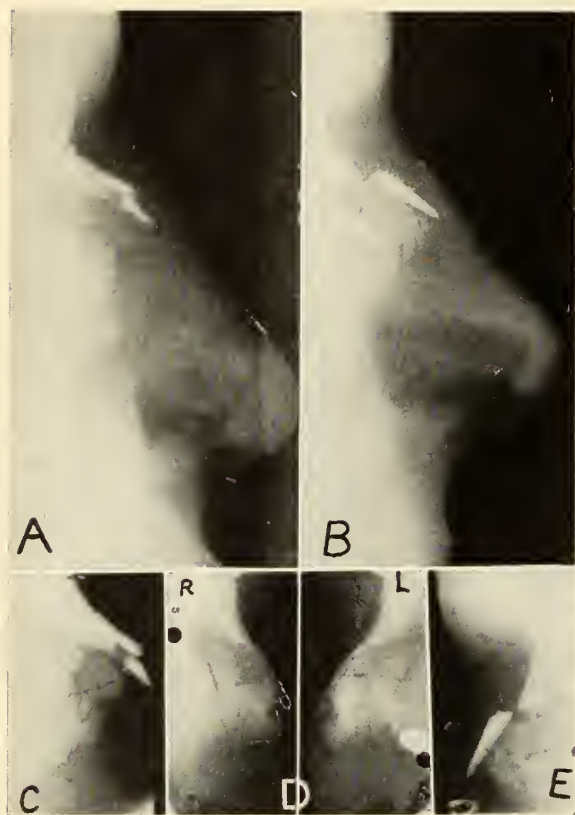


Fig. 1. Roentgenograms showing fractures of the nasal bones.

Deformity may not be noticeable unless the nasal bridge has been displaced from its midline position or has been depressed. One may readily overlook lesser deformities because they are frequently masked by swelling of the soft tissues.

Diagnosis of Fracture of the Nose

One must suspect fractures with minor displacements in all cases of injury to the nose until swelling, discoloration, and tenderness of the overlying soft parts and of the eyelids have been proved to be due only to contusion and not to an associated bony injury. Impaired nasal breathing space and bleeding from the nose usually indicate fractures and careful intranasal examination should be made in every case. This often gives one valuable information regarding fracture displacements of the bony and cartilagenous septum as well as displacements of the nasal bones. X-ray examination (Fig. 1) is usually more a matter of confirmation of the clinical diagnosis than a necessity in the handling of these cases. A carefully exposed lateral X-ray film may, however, be of decided value in the diagnosing of a depressed fracture of the lower portion of the bony bridge which might otherwise be completely masked by swelling (Fig. 1A).

Anatomic Pathologic Considerations

even to the neck. Ecchymosis and swelling usually appear soon after the injury, but it may be almost twenty-four hours before these symptoms become manifest. They may increase for another day or two and then subside to disappear in about ten days' time.

Nasal obstruction is a frequent symptom and may be due to a combination of blood accumulation, swelling of the nasal mucosa and a fracture displacement of the nasal septum. Subperichondreal elevation of the septal lining mucosa from the cartilage by hemorrhage may produce an obstructive hematoma. This should be looked for to permit surgical evacuation of the blood in order to avoid subsequent infection and abscess formation which, in turn, might be followed by destruction of the septal cartilage with the dropping of the cartilagenous bridge to produce a saddle nose.

Pain is rarely severe, and manipulation of the nose may elicit but moderate tenderness. Bony crepitus is usually felt when the fractured parts are manipulated or repositioned by the fingers.

The arch of the bony bridge is composed of the two (paired) nasal bones and the frontal processes of the superior maxillae supported in part by the bony and cartilagenous septum (Fig. 2). Below the nasal bones, the bridge is composed of the anterior margins of the two lateral or triangular cartilages supported by the septal cartilage which projects between them to a variable degree. The lower portion of the nasal bridge is composed of the upper margin of the septal cartilage alongside of which approximate the upper inner borders of the alar cartilages. In combined fractures the component parts of the nasal septum, the vomer, quadrilateral cartilage and the perpendicular plate of the ethmoid are involved and displaced by fracturing or by fracture dislocations. Any of the component bony and cartilagenous parts of the nose may be involved in fractures with resulting displacements, hemorrhage and swelling.

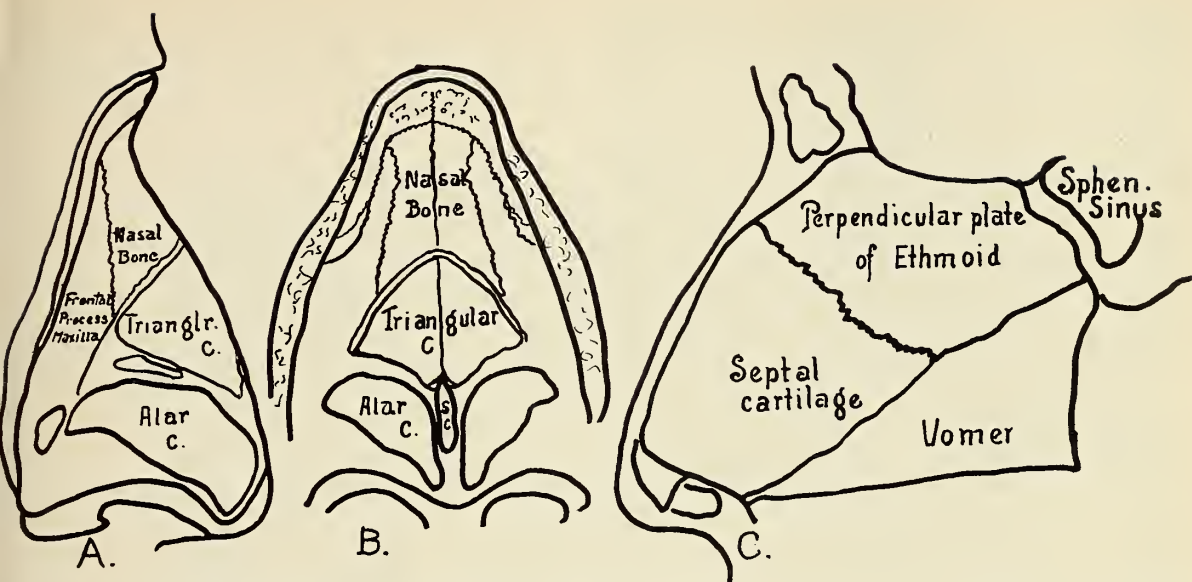


Fig. 2. A. Lateral view of the bony and cartilagenous structures of the nose. B. Anterior view of the bony and cartilagenous structures of the nose. C. Nasal septum.

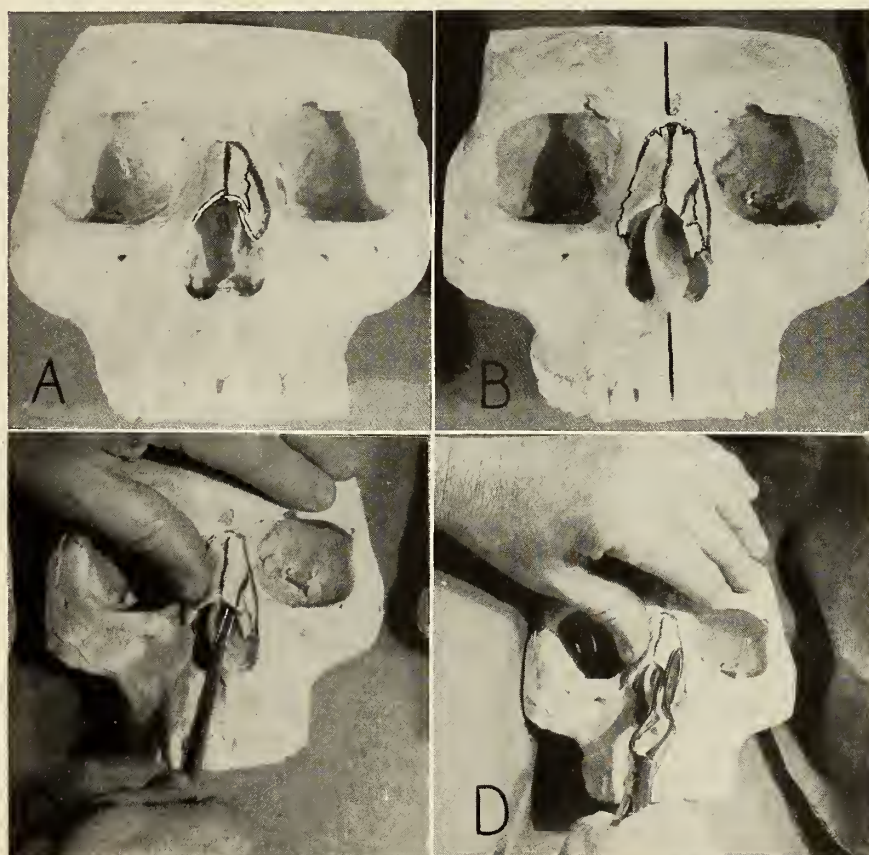


Fig. 3. A. Unilateral depression of the nasal bones. B. Fracture of both nasal bones with lateral deviation. C. Correction of medially displaced nasal bones by means of an elevator. External displacement of the right side corrected by pressure with the thumb. D. The Asch, duck-billed forceps used for the elevation of the depressed nasal bone.

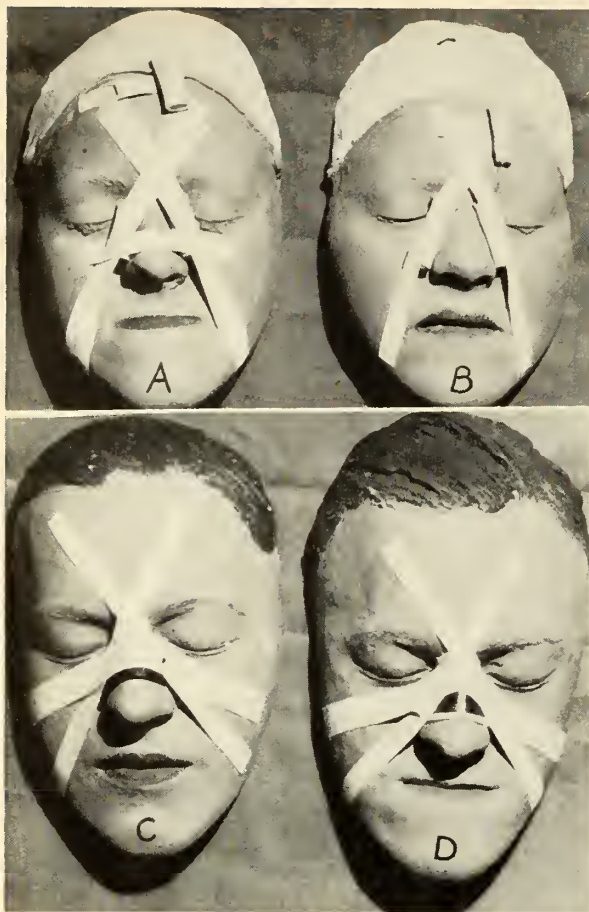


Fig. 4. Methods used to hold the nasal bones in position. A. Cotton rolls. B. Bandage rolls. C. Dental compound splint. D. Metal splint (brass or aluminum).

Treatment of Fractures of the Nose

Hemorrhage must be controlled by local means, such as intranasal tampons or packing applied for a few minutes or left in position for twenty-four hours if necessary. External pressure by a molded splint may be of service in the control of bleeding and the prevention of a hematoma. In most cases, however, bleeding either stops spontaneously in a few minutes or after nasal packing which may be removed in a short time. One must watch for the presence of a hematoma of the external tissues or of the septum in order to evacuate the blood surgically by external or intranasal incisions.

Swelling and ecchymosis cannot be effectively controlled and usually runs its course. Cold compresses may reduce the swelling to some degree.

Pain may be absent, and if of any consequence, may be controlled by aspirin, codeine, and other sedatives. Blood clots may be removed from the

nasal cavity by the usual methods. The patient should not blow his nose as air might be blown through lacerations to produce an emphysema of the nose or cheek. This might become infected and at best might persist for several weeks.

Primary treatment of fractures of the nose may be undertaken within the first two or three weeks after the injury, i.e., before more or less complete fibrous immobilization of the fragments has taken place. If this period has elapsed, it is well to postpone rhinoplastic procedures for the correction of deformities for several months. By this time, complete healing and circulatory adjustments of the parts will have taken place, and the tissues will react more kindly to the rather severe surgical procedures made necessary for the correction of the displacements and deformity.

Simple linear fractures without deformity usually do not require any active treatment unless a hematoma is present. One must differentiate between an extensive swelling, which may be reduced by gradually applied pressure, and a hematoma, which produces a moderately firm enlargement that cannot be reduced to any extent by externally applied pressure. Such collections of blood and blood clot should be evacuated and pressure applied in order to prevent possible organization of the clot and permanent enlargement of the area.

Unilateral medial depression (Fig. 3) of the nasal bridge is usually due to an impact with a small object. The lines of fracture tend to be multiple and involve both the frontal process of the maxilla and the nasal bone proper. Initial swelling may completely mask this type of fracture though unilateral nasal obstruction and a sense of pressure in the upper portion of the nose on the affected side will usually bring the patient to the physician for treatment. Palpation and manipulation will determine the position of the depressed fragment and whether there also is a slight lowering of the dorsum of the bridge. A small dental x-ray film placed against the side of the nose with minimal exposure often gives valuable information regarding fractures of the lower end of the dorsum of the nasal bones with slight depression. In the event that this type of nasal fracture is not diagnosed during the period of swelling, the driven-in appearance becomes apparent when the swelling subsides after a few days, and there is still ample time for successful

elevation of the depressed fragments. Treatment is relatively simple. The nasal mucosa adjacent to the depressed fragments may be anesthetized by the application of 10 or 20 per cent cocaine

is fractured and carried laterally with the movement of the bony bridge. The resulting deformity is a flattening and depression on the side receiving the blow, with displacement of the dor-

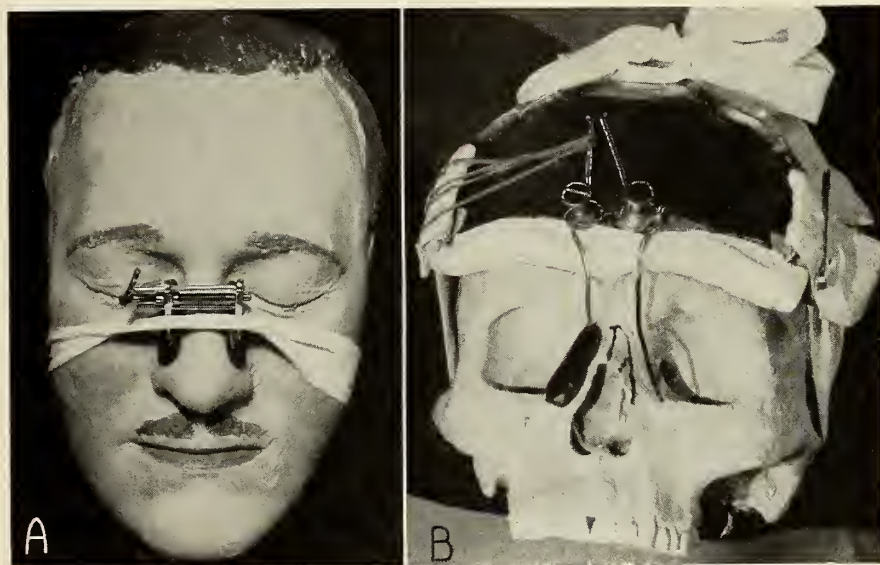


Fig. 5. A. Adjustable Joseph splint used to maintain the medial position of the nasal bones. B. Frontal appliance used to maintain the medial position of the right nasal bone.

solution, using cotton on fine metal applicators. A slightly curved blunt elevator is then inserted high up in the nose between the septum and the depressed fragments. These are elevated and repositioned, aided by manipulation with the fingers on the external surface of the bridge. Slight over-correction of the deformity is indicated. The fragments may be held in position by the insertion of a small high pack of one-half inch iodoform gauze well lubricated with an anesthetic antiseptic ointment. This should be changed every day until the fragments become sufficiently stabilized to maintain their proper position without danger of recurrence of the deformity. An external splint made of brass or aluminum lined with outing flannel or moleskin adhesive (Fig. 4) may be useful in maintaining the alignment of the nose and protecting it from minor pressures or traumatism.

Lateral deviations of the bridge (Fig. 5) are the result of severe blows on the side of the nose which produce fractures of the frontal processes of both sides of the maxilla with transverse fractures of the upper portion of the bridge. The underlying bony and cartilagenous septal support

sum of the bridge to the opposite side. The diagnosis of this type of fracture is usually made without difficulty for the lateral deviation is quite noticeable although extreme swelling may occasionally disguise the fact that the nasal bones are displaced considerably from the median plane.

Repositioning of the displaced fragments may be secured by pressure of the thumb on the convex side. This may be supplemented by the elevation of the depressed side by using a blunt elevator within the nasal cavity. Though one may secure reduction of the displacement at times without anesthesia, it is better to inject novocaine along the lateral borders of the nose and apply cocaine and adrenalin to the nasal septum and the external nasal walls adjacent to the frontal processes of the maxilla. This facilitates more accurate replacement of the fragments and permits careful and firm manipulation unhampered by tenderness of the injured parts. The associated fracturing or buckling of the nasal septum may at times interfere with the repositioning of the nasal bones. In such cases, realignment of the nasal septum may be accomplished by means of a duckbilled Asch forceps (Fig. 6). There may be a tendency for the septum to spring back to-

wards its former displaced position. If so, intra-nasal splinting or packing should be maintained on this one side (and changed daily) until the septum will remain in the median position. Slight

repositioned nose. This compound hardens quickly and may be trimmed and reapplied with adhesive tape. Splints may be made of soft metals such as tin, copper, or alloys or of stiffer metals

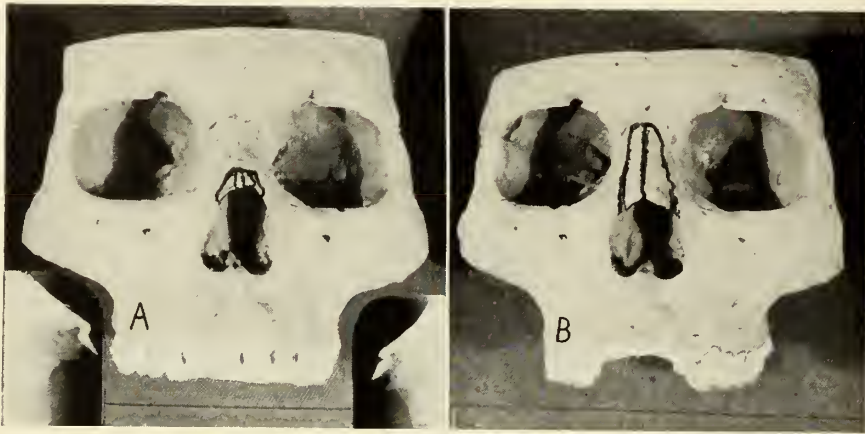


Fig. 6. Reconstructed models of depressed fractures of the nasal bones: *A*. Depressed tip. Insets—roentgenograms using dental films. *B*. Depressed fracture of the entire nasal bone.

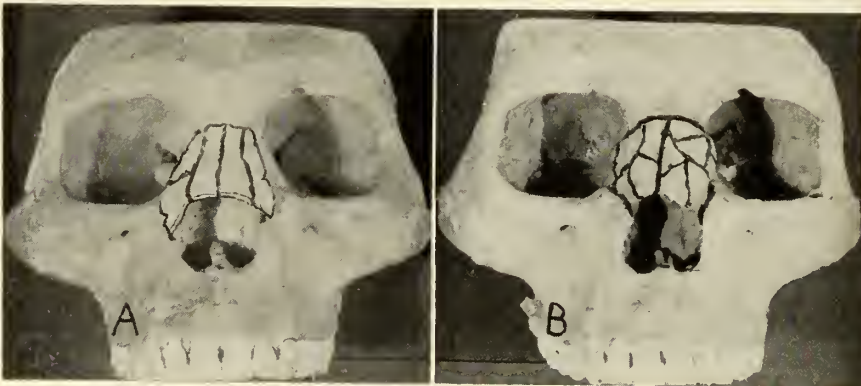


Fig. 7. Markedly depressed fractures of the bridge of the nose. *A*. Fracture of the nasal bones, frontal processes of the superior maxilla with lateral displacements to override the internal margins of the orbit. *B*. Depressed fracture involving the frontal process of the maxilla, the ethmoidal, lacrymal, and nasal bones.

over-correction of both the septal displacement and the external deformity is indicated in these cases of fracture deviations of the bridge, and the corrected position should be maintained by the use of some form of external support. Dental cotton rolls or bandage rolls, held against the side of the nose by adhesive tape (Fig. 7), may be used. It is difficult, however, to hold these rolls in position and maintain uniform support without undue pressure. Therefore, in most cases, some form of rigid splint should be employed. Dental impression compound may be slightly softened in hot water and moulded over the

such as aluminum or brass. All of these splints should be lined with outing flannel held by mastisol or by moleskin adhesive. If greater lateral compression is needed, one may apply the Joseph or Safian nasal brace (Fig. 8). If there is need for extra pressure on but one side, this may be secured by various types of head bands with adjustable extension arms from frontal plates (Fig. 9). The pressure may be applied by spring action or by the use of rubber bands as described by Kazanjian. Risdon has designed a similar pressure appliance to be attached to a dental splint cemented to the upper teeth. In cases where con-

siderable difficulty is encountered in maintaining the proper position of the septum and tip of the nose and the upper bridge by the methods outlined, the patient should be advised that a per-

cate the treatment and the ultimate result may leave much to be desired.

Very severe traumatism may produce marked comminution of the nasal bones and upper por-

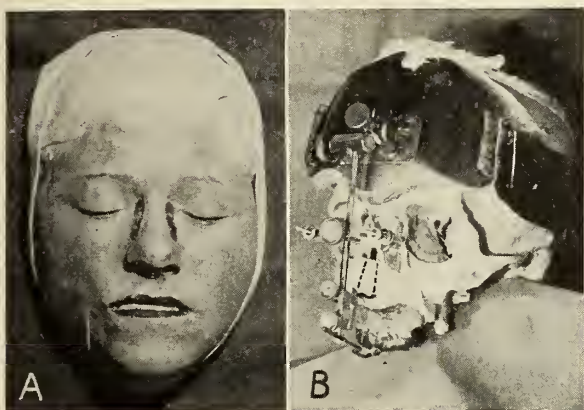


Fig. 8. *A.* Elevation of comminuted fractures of the nose by means of metal plates and through and through silver wires (J. B. Brown). *B.* Straith appliance for the elevation and support of markedly comminuted fractures of the nasal, lacrimal, ethmoidal bones, and the frontal process of the superior maxilla.

fect result is not always possible. Septal surgery and rhinoplastic procedures may be necessary at a later date to improve the breathing space and to restore the nose to the desired shape and mid-line position. This should be postponed for six months or more.

Depressed Fractures of the Nasal Bridge

Blows on the lower third of the bony bridge frequently result in multiple fractures with slight depressions. Swelling may completely mask the presence of the depression and direct lateral x-rays should be taken using a dental film. If depression is present, the parts should be elevated with a thin blunt elevator and a small amount of lubricated antiseptic packing inserted high up to support the bones. The packing should be changed at least every other day.

Greater traumatism may fracture the nose through the frontal processes of the maxilla lateral to the nasal bones, and the fractured edges may spread laterally to override the basilar portions of the frontal processes. The nasal half of the bony bridge becomes markedly flattened and widened. Intranasal elevation of the parts followed by packing and external manipulation followed by the application of Safian or Joseph external splints will usually correct the deformity. Septal fracturing and overriding often compli-

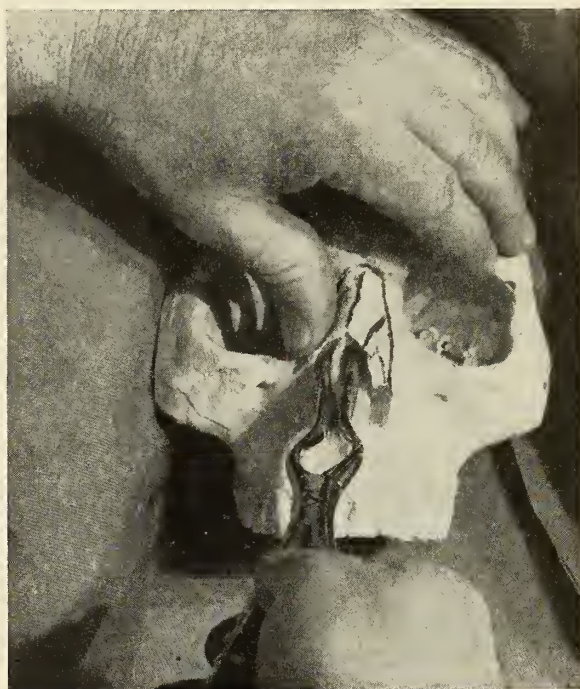


Fig. 9. Asch septum straightening forcep used to reposition the nasal septum in the mid-line where it is maintained by intranasal splints and packing.

tions of the nasal processes of the maxilla with extreme depression of the fractured parts. The nasal bridge is driven backwards into the ethmoidal region to fracture the ethmoidal bones on both sides, and the inner margins of the orbital rims are displaced externally. The inner canthi are consequently displaced externally and frequently downward to a considerable extent to produce a very distressing deformity. In cases of this type, attempts to reposition the nasal bridge should be postponed for at least ten days in order to prevent if possible the development of meningitis. Treatment of these severe injuries is naturally complicated and painstaking. The Straith appliance is excellent for the elevation and support of the nasal bone:

"Two rubber covered wire splints are inserted into the nostrils. By a simple mechanical device, these splints may be elevated, tilted to various angles, or shifted laterally, as the situation may require. The bridge may thus be maintained in proper position for several weeks. Two lateral pressure pads may be applied and adjusted separately to prevent spreading of the nasal fragments."

We have added an upper jaw dental splint to the Straith appliance to give additional support and fixation of the lower end of the vertical bar carrying the intranasal wire splints and lateral pressure pads. The greatest difficulty encountered in the treatment of these fractures is the correction of the external displacement of the orbital rim, and the subsequent maintenance of the fractured parts in their correct position.

Occasionally, a severe blow may completely separate the nasal bones from the glabella at the suture line, and the entire nose may drop a quarter of an inch or more. Usually, this type of fracture will be associated with a high horizontal complete fracture of the maxilla. The management of these combined fractures is that of the treatment of fractures of the maxilla in that the measures employed to raise and support the maxilla will usually elevate the nasal bones to their proper position in contact with the glabella. Should the maxilla not be fractured or reduction not complete, the nose may be brought up and its position maintained by drilling small holes through the nasal process of the frontal bones and through the upper end of the nasal bones—a 24 or 26 gauge silver wire passed through the holes and twisted will secure the bones in correct position.

Fractures of the Nasal Septum

Fractures of the nasal septum may result from a blow on the lower half of the nose, and may occur without appreciable external deformity at the time of the injury. Cartilage unites by fibrous union, which may not adequately support the overlying cartilages and skin, and in course of time contraction of the scar plus minor traumas may produce deformity of the lower half of the nose. The treatment indicated is the routine control of nasal hemorrhage, the evacuation of a hematoma if present, followed by packing to prevent its recurrence. Every effort should be made to prevent the formation of a septal abscess.

Fractures of the septum with deformity are of several types.

1. A saddle nose with but a slight depression, or to the extent that a deep hollow is produced when the septal cartilage is fractured near its junction with the tips of the nasal bones.

2. Fractures at a lower level may be accompanied by a dropping of the tip cartilages.

3. Overriding of fractured portions of the septal cartilage may occur without deviation, and there will be varying degrees of nasal obstruction. The immediate treatment of these conditions is not very satisfactory, and it usually becomes necessary to resort to rhinoplastic surgery to restore the contour of the bridge or raise the tip after several months have elapsed. Submucous resection of the nasal septum is frequently indicated.

Fracture deviations of the nasal septum may occur with internal deformity, with external deformity, or with both conditions present.

The septal cartilage may be fractured and considerably bent to produce obstruction to breathing without any external evidence of the injury. The treatment consists of replacement of the deviated portion under local anesthesia followed by intranasal splinting or packing to maintain the septum in the midline position.

In some cases, the entire septum is dislodged from its lower attachments and displaced laterally. If the septal cartilage is fractured at the same time and bent or displaced from its attachment to the perpendicular plate, the replacement of the entire septum is usually satisfactory for a time but the cartilage deviation tends to recur, necessitating a submucous resection.

Fracture deviations of the lower portion of the septal cartilage may occur without an accompanying fracture displacement of the bony ridge. The treatment is manipulation of the displaced septum to a slightly over-corrected position to be maintained by intranasal packing reinforced by external splinting or adhesive tape.

The anterior edge of the nasal septum may be dislocated from its attachment to the vomer and may project at the nares with an accompanying deviation of the tip. This should be replaced and held by packing. If recurrence of the dislocation takes place, plastic correction is indicated to improve the breathing space and the appearance. If the nose is too long, it may be shortened at the same time.

Summary

Lacerated wounds of the nose should be treated and sutured with great care in order to restore proper normal contour and alignment and prevent undue scarring.

Injuries of the nose accompanied by swelling or nasal obstruction should be investigated to de-

termine the extent of bone and cartilage injury and displacement to make possible adequate treatment to prevent subsequent deformity.

Fracture dislocations of the nasal septum may frequently be mobilized and manipulated to a reasonably satisfactory midline position. Submucous resection of the nasal septum may, however, be necessary at a later date to relieve nasal obstruction.

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TRANSFUSION REACTIONS AND ERYTHROBLASTOSIS FOETALIS CAUSED BY THE RH FACTOR

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IN 1940, Landsteiner and Wiener⁴ first showed that 85 per cent of humans had in their red blood cells an agglutinin which could be demonstrated if human red cells were tested with serum from rabbits which had previously been immunized by injections of blood from Rhesus monkeys. Humans possessing this agglutinin they designated Rh positive. Approximately 15 per cent of humans lacked this property in their red cells. They were called Rh negative. Reports which have appeared recently indicate that the Rh factor may be the cause of a large number of hemolytic transfusion reactions. A causative relationship to erythroblastosis foetalis now seems likely. In addition there is evidence which suggests that the Rh factor may be of some importance in the production of toxemia of pregnancy.

Transfusion reactions caused by the Rh agglutinogens and agglutinins were first described by Wiener and Peters in 1940.¹³ In their cases the production of the Rh agglutinins in Rh negative patients was stimulated by a first transfusion of Rh positive blood; and a reaction occurred when a second transfusion of Rh positive blood was given later. It is not entirely clear why transfusion reactions on this basis do not occur more often, if the above percentage of Rh positive and Rh negative individuals is correct. Wiener and Peters offer two possible explanations:

(1) that not all Rh negative persons are able to produce Rh agglutinins; (2) that subsequent transfusions of Rh positive blood are either not given or are not given at a time when a high titre of Rh agglutinins is present in the recipient's serum.

Erythroblastosis foetalis, which includes fetal hydrops, icterus gravis, and congenital anemia, has long been an etiological puzzle. In 1938, Darrow² suggested that it might be due to an antigen-antibody reaction between the infant's and mother's blood. In 1939, Levine and Stetson⁵ described a case of transfusion reaction in a woman never previously transfused but who had just delivered a macerated fetus. They suggested that a dominant "immunizing property in blood and/or tissues of the fetus must have been inherited from the father." The mother, lacking this property, was immunized against it by the fetus in utero. In 1941, Levine, Burnham and others published papers,^{1,7} which showed that the Rh agglutinin was the "immunizing property" in a majority of the cases of erythroblastosis foetalis. It was shown⁸ that 91 per cent of the mothers of infants affected with erythroblastosis foetalis were Rh negative, in contrast to the 15 per cent to be expected from the general population. In addition it was shown that 100 per cent of the affected infants and their fathers were Rh positive. It is likely, therefore, that the Rh positive fetus stimulates the production of Rh agglutinins in the mother's blood. The agglutinins formed in the mother gain access

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to the fetus, cause lysis of the fetal red cells and produce erythroblastosis foetalis.

In 1905 Dienst³ suggested that toxemia of pregnancy might be due to incompatibility between maternal and fetal blood. McQuarrie⁹ and Ottenberg¹¹ published papers in 1923 supporting this hypothesis. That incompatibility of fetal and maternal blood due to the Rh factors might play a rôle is suggested by the high incidence of symptoms and signs of toxemia of pregnancy which is found amongst mothers while carrying infants affected with erythroblastosis foetalis. This possible relationship certainly merits further study.

Tests for Rh Agglutination

Ordinary agglutination technique will only rarely demonstrate the presence of Rh agglutination. The reaction is most pronounced at refrigerator temperatures. Wiener and Peters¹³ described a sensitive technique which is as follows: One drop of a 2 per cent saline suspension of the donor's cells is mixed with two drops of the patient's serum, the mixture is chilled in ice water and centrifuged five minutes. The tube is gently shaken to resuspend the cells and agglutination is read macroscopically and microscopically. A control with patient's cells and serum is run to rule out agglutination due to an increased titre of "cold" agglutinins.

Recently Levine and co-workers⁶ have described a different technique in which the mixture of donor's cells and patient's serum are incubated first for one hour at 37° C., then centrifuged at low speed for one minute, resuspended by gentle shaking and examined for agglutination as above. It would seem wise to carry out the procedure at refrigerator, room and body temperature if atypical agglutination is likely to be present, since the agglutinins are variable in the temperatures at which they act in vitro.

A further precautionary measure which may be employed is the biological test: the first 50 to 100 c.c. of blood is administered to the patient in not less than one hour. If no reaction occurs the remainder of the blood may be administered at a more rapid rate. That this measure is not completely reliable is borne out by several case reports^{10,12} in the literature in which serious late reactions (oliguria, uremia, etc.) were noted without any immediate untoward symptoms (chills, fever, pain, etc.).

Indications for special studies to prevent reaction caused by the Rh factors are as follows: (1) If repeated transfusions are required for the supportive care of any medical or surgical patient (i.e., blood dyscrasias, chronic blood loss, pre- and postoperative care); (2) Any transfusion during pregnancy or the puerperium particularly if a history of obstetrical complications exists. A list of Rh negative donors should be available on every obstetrical service.

Case Reports

M. H., a twenty-six-year-old white woman, was admitted to the University Hospitals on July 19, 1941. She stated that she had been delivered of a macerated fetus, born at full term on July 6, 1941. A midwife had attended her in the home. Edema of the lower extremities had been present for the last month and a half of the pregnancy, and no fetal movement had been noted for the last month. About ten days' postpartum abnormal bleeding occurred with the passage of large clots. At this time she also noted chilly sensations followed by a sense of warmth. She was admitted to the University Hospitals on July 19 because of these symptoms.

Inquiry into her past health revealed that she had had three pregnancies including her present illness. The first pregnancy was in 1938 and resulted in the birth of a normal male infant. No complications occurred. Her second pregnancy was in 1940, the infant lived only a few minutes and an autopsy revealed erythroblastosis foetalis. This was a full term pregnancy and no maternal complications occurred. The third pregnancy in July, 1941, resulted in a macerated fetus at full term, and the autopsy again revealed erythroblastosis foetalis.

Physical examination at the time of entry to the hospital revealed the following pertinent findings: temperature, 103°; pulse, 110; blood pressure, 125/85. Patient was pale. Abdomen revealed slight distention. The uterine fundus was palpable and tender 15 cm. above the symphysis pubis. There was also slight generalized abdominal tenderness and rebound tenderness. Large blood clots were present in the vagina. No placental tissue could be seen in the cervix.

Laboratory studies revealed the following: Blood group O (Landsteiner), (Group 4 Moss); Hgb. 4.9 Gms.; R.B.C. 2,310,000; W.B.C. 17,700; 86 per cent neutrophils. Urine: Albumin 1+, microscopic negative. Because of the anemia, five transfusions of citrated blood were given. In each case the donor was group O (Moss group 4), and in each case the blood was cross matched before administration and found compatible. Different donors were used for each transfusion. The first transfusion of 500 c.c. was given on July 19 without reaction. The second transfusion, given on July 21, was stopped after 200 c.c. had been given because of a severe chill, following which the temperature rose to 104.2° F. The third and fourth transfusions were given on July 23 and 24 respectively, 500 c.c. each and without reaction. On July 25, 500 c.c. of blood was given with-

but any immediate reaction but a few hours later it was noted that the patient passed grossly "bloody" urine. On July 26, the next day, the urine appeared grossly bloody but no red cells could be found on microscopic examination. On July 29 the blood pressure was 150/90 mm. Hg. Subsequent readings varied widely from 130/90 to 90/90. The blood pressure returned to normal on August 15. The urine showed 1 to 3 plus albumin and varying numbers of red cells, and returned to normal on August 20. The late appearance of erythrocytes in the urine, after the transfusion reaction, was not readily explained. The possibility of glomerular damage or of an actual glomerulitis was considered.

Unfortunately we were unable to obtain blood from the donors used in this case, since they lived at some distance from Minneapolis. However, the patient's serum when tested with the cells of 35 group O donors from our blood bank by means of the cold technique described above, showed agglutination with 77 per cent. With but two of these was agglutination observed when tested by the ordinary cross-matching technique. Red cells from the patient's husband, also Group O, were agglutinated by the patient's serum in dilutions up to 1 to 10. The control with the patient's own cells and serum was negative.

Since, in all the cases tested, the donor's cells did not contain ordinary A or B agglutinogens, it may be concluded that some other agglutinin was present which caused the agglutination observed with the Wiener technique. This fact, together with the history of delivery of two infants with erythroblastosis foetalis, suggests that the Rh factors were the cause.

The second case is reported through the kindness of pathologist, Dr. Frank C. Andrus, and the staff of the department of Obstetrics and Gynecology of the Minneapolis General Hospital.

The patient, a woman aged twenty-nine years, was admitted to the Minneapolis General Hospital on June 5, 1941. She stated that one week previously she had attempted mechanical self-induction of abortion. She was approximately four months pregnant at that time.

Inquiry into her past health revealed that she had had four previous pregnancies. The first resulted in a full term delivery of a normal infant. The next three pregnancies ended in abortion although the stage of pregnancy and nature of the abortions are not known.

The patient was afebrile when admitted to the hospital. She was not bleeding. Attempts at medical in-

duction of labor failed. Mechanical means were tried later. On June 21, 1941, she experienced a sudden hemorrhage. The next day a transfusion of 500 c.c. of homologous Group A blood was administered. A severe reaction began just as the transfusion was completed. The patient suffered a severe chill, the temperature rose to 103.6° F. and hemoglobinuria was noted within a few hours. Oliguria (a 24-hour output as low as 70 c.c. of urine) followed. A mild degree of nitrogen retention was noted. The patient gradually recovered.

Samples of the patient's and donor's blood were sent to Dr. Alexander Wiener. He reported that the patient was Rh negative and the donor Rh positive. Dr. Wiener believed it likely that Rh agglutinins in the patient were responsible for the transfusion reaction.

Summary

1. The role of the Rh factor in the production of transfusion reactions and in the pathogenesis of erythroblastosis foetalis is reviewed.
2. Tests for Rh agglutinins are discussed and indications for their use are stated.
3. Two cases of transfusion reactions probably due to Rh factors are described.

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A SIMPLE METHOD FOR THE REMOVAL OF IODIZED OIL FROM THE SPINAL SUBARACHNOID SPACE

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IN 1919 Dandy introduced air myelography. In 1922 Sicard and Forestier first used Lipiodol in the subarachnoid space as an adjunct in the diagnosis of spinal cord lesions. It has since developed that iodized oil myelography is the most accurate roentgenologic method of determining the presence of a lesion within or encroaching upon the spinal subarachnoid space. Not only can most of the lesions be localized by this method but often it is possible to differentiate between the various types of abnormalities present. However, since these iodized oils are not absorbed from the subarachnoid space and since their continued presence may be harmful in some instances, there has been an urgent need of finding another contrast medium which is absorbable and non-toxic.

The only substances which have met these requirements are the gases such as air, oxygen, ethylene, etc. In recent years gas myelography has become very popular, especially for the diagnosis and localization of posterior herniations of the intervertebral disc. Most observers agree, however, that examinations using gas are less accurate than those using iodized oil and that the interpretation of the gas films is far more difficult. If it were possible to remove the iodized oils all the objections to their use could be dismissed.

When a laminectomy is done following an iodized oil examination it is possible to open the dura and remove some of the oil. However, it is usually not possible to obtain all of the oil.

In 1936 Lucherini described a method for the removal of Lipiodol from the spinal sac, in those cases where laminectomy was not done. He introduced a trocar into the most dependent part of the dural sac and, with the patient sitting up, the oil drained out. He did not obtain complete removal, however. In 1939 Briesen reported one case in which he bored a hole one-eighth of an inch in diameter in the sacrum through which he also introduced a trocar into the dependent dural sac. A long time was required for the oil to run

out and again a complete removal was not obtained. Adson carried out a similar procedure about the same time in which he exposed the caudal sac over an area of seven to ten millimeters by removing a small part of the sacral lamina. He incised the dura and drained the oil off with the patient upright. Adson advocated that this procedure be used only in some of the cases which did not have a laminectomy following the oil examination. All these procedures are not simple, however, and not suitable for routine use.

In March, 1941, Kubik and Hampton reported a procedure in which the oil was successfully removed by simply aspirating it through a spinal puncture needle immediately on completion of the roentgenologic examination. At that time thirty cases were reported and many more have been added since. This effectual method of removal has eliminated all the objections to the use of iodized oils. Since there are so many cases suspected clinically of having a posterior herniation of the intervertebral disc, it is very gratifying to be able to verify this diagnosis roentgenologically using iodized oil knowing that the oil can be removed.

In October, 1941, we first carried out this procedure at the Interstate Clinic. Since that time thirty additional cases have been done at the University of Minnesota Hospitals and at the Interstate Clinic. A description of the technique introduced by Kubik and Hampton for the injection and removal of oil from the subarachnoid space is as follows: The patient is placed face down on a tilt-type fluoroscopic table. The site for the introduction of the spinal puncture needle is located by fluoroscopic examination and the point for the puncture marked on the patient's skin. The optimal site for the puncture is L-3 when the lesion is at L-4 or L-5. However, if the lesion is suspected to be at L-3 or higher the puncture should be done at L-4. The field is prepared in the usual manner for a spinal puncture. A sterile circumcision sheet has been found to be the most convenient type of drape. A sterile towel used as a flap is fastened to the drape to protect the operative field during the fluoros-

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copy. The drape is held in position by taping it to the shoulders. This procedure keeps the drape from slipping out of position when the patient is tilted and no difficulty is encountered in keeping the field immediately around the spinal needle

same syringe which was used for injecting the oil is preferable because the plunger and the barrel are well lubricated. This allows for easy manipulation without which *gentle* aspiration cannot be carried out. There is also less likeli-

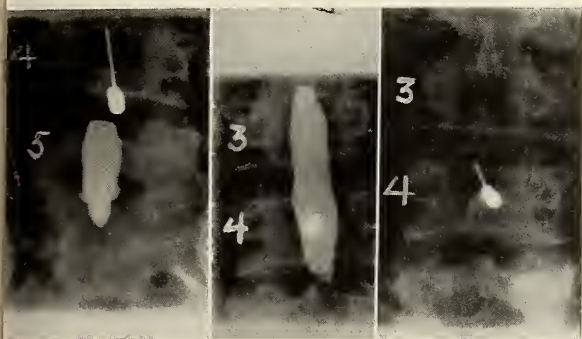


Fig. 1. *a*, Iodized oil filling the end of the normal spinal subarachnoid space. The spinal needle passes between the spinous processes of the 3rd and 4th lumbar vertebrae with the point located just to the side of the midline. This is not perfect position. *b*, Iodized oil in proper position for aspiration. *c*, Oil completely aspirated with needle still present.

sterile. An 18-gauge spinal puncture needle with a blunt point is carefully introduced and its position checked fluoroscopically to make certain that it is in the center of the spinal canal. The exact position of the needle has been found to be of the utmost importance for the successful removal of Lipiodol. Our poor results have occurred when the needle has not been centrally placed. The initial puncture should be very carefully done so as to avoid multiple punctures as this also causes poor results. When the needle has been properly placed 4 cubic centimeters of spinal fluid is removed and 4 cubic centimeters of Lipiodol is injected. The spinal puncture needle is left in position and covered with the sterile towel previously mentioned. The fluoroscopic examination is then carried out. One should be very careful not to jar the spinal puncture needle with the fluoroscopic screen. Spot films are made at any desired level by holding the film on the patient's back, above the needle, and making the exposure with the fluoroscopic tube. If desired, oblique and even lateral views can be taken by carefully rotating the patient into these positions. When the fluoroscopic and radiographic examinations have been completed, the oil is returned to the site of the spinal puncture needle. The sterile towel is folded back. The same 5 cubic centimeter syringe used for injecting the oil is attached to the needle and by extremely *gentle* traction on the plunger the oil is aspirated. The

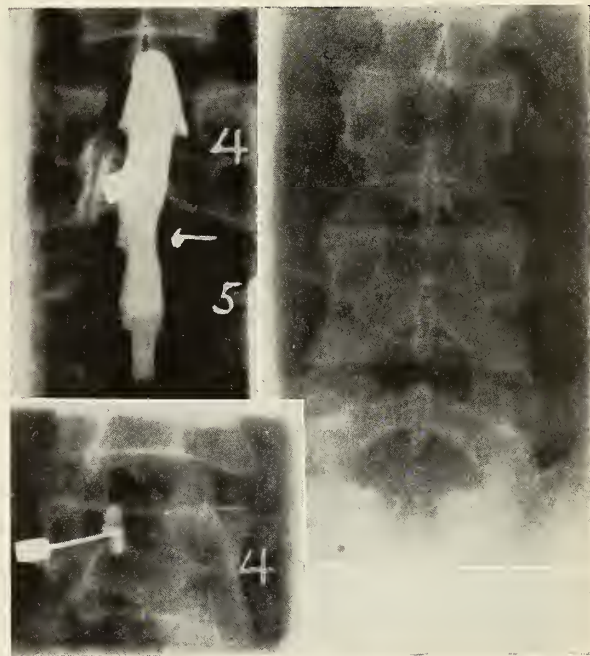


Fig. 2. *a*, Arrow points to slight indentation produced by herniated disc. *b*, Almost all of the oil has been removed. *c*, Final result showing a few tiny droplets remaining.

hood of air leaking in around the plunger. If the patient complains of pain during the aspiration it usually means that a nerve root has been pulled up to the end of the needle. The suction should be stopped momentarily and the needle rotated slightly to overcome this difficulty. The aspiration is continued until spinal fluid appears. The needle is again covered with the previously mentioned sterile flap. The amount and location of the remaining oil is determined fluoroscopically and the position of the patient is changed if necessary, chiefly by tilting the table, in order to collect the oil around the tip of the needle again. Aspiration is repeated until clear spinal fluid again appears. Fluoroscopy and aspiration are repeated alternately until all the oil has been evacuated. In order to obtain the last few droplets of iodized oil it may be necessary to suck out a few cubic centimeters of spinal fluid. Including the 3 or 4 cubic centimeters of spinal fluid initially removed for laboratory examination it is not necessary to take out more than ten cubic centimeters for the entire procedure.

In our first cases we were not always successful in removing all of the oil. This was due to lack of appreciation of the importance of the points mentioned above. In the last twenty-four cases we have had uniformly good results.



Fig. 3 *a*, Arrow points to ruptured disc at the lumbosacral junction. *b*, Arrow points to needle in perfect position between spinous processes of the 2nd and 3rd lumbar vertebrae. All the oil has been removed. *c*, A few tiny droplets of oil are visible after the needle is withdrawn.

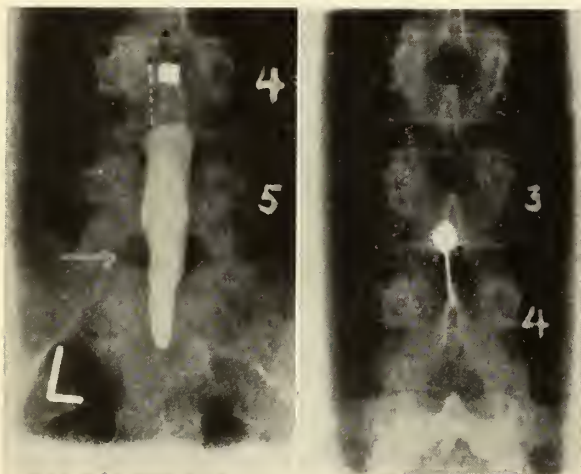


Fig. 5 *a*, Small indentation at the 5th lumbar vertebra on the left produced by a ruptured disc which was found at operation mostly lateral to the dural sac. *b*, All but a few tiny droplets have been removed. The needle is in excellent position.

Summary

Kubic and Hampton have reported a new method for the aspiration of iodized oil from the spinal subarachnoid space. This consists of as-

pirating the oil through the same spinal puncture needle through which it was injected. We have used this method successfully in thirteen out of seventeen cases. Although the procedure is basically very simple there are several points in the

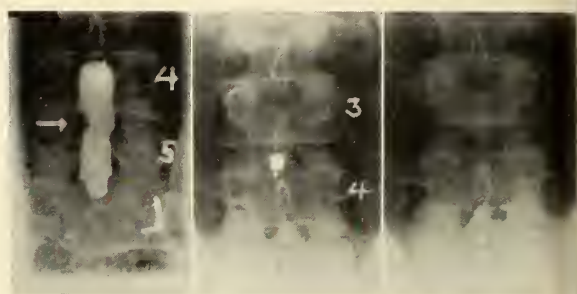


Fig. 4 *a*, Ruptured disc present between the 4th and 5th lumbar vertebrae on the right. *b*, Needle slightly to right of midline. All oil removed. *c*, Final film after removing needle.

technique which are essential for a successful aspiration. These are as follows:

1. The site for the puncture is best determined fluoroscopically.
2. The needle must enter the dural sac as close to the midline as possible. This position should be checked fluoroscopically before the oil is injected.
3. Multiple punctures must be avoided.
4. Very gentle suction using a small syringe (2-5 c.c.) is necessary to avoid sucking a nerve root or piece of membrane into the end of the needle.

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THE REMOVAL OF IODIZED OIL (LIPIODOL) FROM THE SPINAL CANAL AFTER ROENTGEN DIAGNOSIS

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IODIZED poppy seed oil (lipiodol) still is considered the best contrast medium for roentgen diagnosis of intraspinal lesions. Although it has been in use for many years, and a large number of people are going about their daily tasks with several cubic centimeters of lipiodol floating around in their cranio-vertebral cavities, one cannot help but feel somewhat apprehensive about injecting a non-absorbable and potentially irritating substance into such an important space as that surrounding the central nervous system.

Nor is this apprehension entirely without foundation in clinical experience. Maclaire² reports one case in which lipiodol became encysted at the site of a lesion previously exposed by laminectomy and caused an unmistakable meningomyelitis. In spite of the fact that the oil was evacuated from these cysts at a second operation the cord damage was irreversible and the patient grew progressively worse and was totally disabled at the time of the report. Maclaire refers to his experience in this case as "horrible," and concludes that lipiodol should be used only as a last resort, and should be entirely restricted to those cases where laminectomy is to be performed within a few days, at which time oil can be liberated from the canal. Walsh and Love⁴ defend the intraspinal use of iodized oil by saying that examination of the cerebrospinal fluid from twenty-four patients who had had intraspinal injections of lipiodol failed to show any clinical reactions that might not have been produced by a spinal or cisternal puncture with the withdrawal of cerebrospinal fluid alone. However, they do say that the injection of iodized oil into the subarachnoid space in certain cases in which partial or complete obstruction of the circulation of the cerebrospinal fluid exists, might accentuate clinical symptoms. Craig¹ feels that intraspinal inflammatory processes might be irritated by iodized oil. This view is supported by the experience of one of us (G.R.K.) who some years ago had the unfortunate experience of causing an acute exacerbation of symptoms in a patient who was given lipiodol because a cord tumor was suspected when she was in reality suffering from multiple sclerosis. This patient became perma-

nently disabled and letters received from her for several years afterward were vituperative to say the least. Oldberg³ states, "Anyone who has had perforce to dig about in the soggy mess which is the cauda equina of some unfortunate in whom 5 or 10 cubic centimeters of lipiodol had been optimistically injected a year or two previously will understand" that indiscriminate use of the substance in many sporadic cases where it is not indicated is harmful.

With these experiences in mind, it was welcome news when one of us (J.P.M.) learned from Dr. Aubrey O. Hampton, of the Department of Roentgenology of the Massachusetts General Hospital, of a method for overcoming the main objection to the use of lipiodol. He read a paper, as yet unpublished, describing the method for lipiodol removal, at the 1941 meeting of the American Roentgen Ray Society and the credit for introduction of the method belongs to Doctor Hampton and his associates. The objections to the use of lipiodol have been bound up in the fact that its removal has heretofore been considered impossible without opening the dural sac at operation and that, even in those cases which were operated upon, a large percentage of the material remained after an attempt at removal during surgery. A description of the method of removal as we have employed it, follows:

The entire procedure is carried out on the fluoroscopic table which must be equipped with a change-over switch to radiographic current so that films may be obtained during the examination for a permanent record of the findings. The patient is placed prone on the table and a preliminary fluoroscopy is done to locate the spinous process of the third lumbar vertebra. This is marked on the skin so that the lumbar puncture can be made at the interspace directly below. The lumbar puncture is then done at this level with the patient remaining prone. The level is important because in the average patient the maximum curve of the lumbar lordosis will cause the lipiodol to collect in the area when the patient is placed approximately horizontal. A 16 or 18 gauge needle is used. This should have as short a bevel as can be used for the purpose. It is

very important that the puncture be made in the midline and that the course of the needle does not deviate to either side. The roentgenologist can be of assistance in this regard by sighting

one has the advantage of visualizing by fluoroscopy the position of the mass of oil in relation to the tip of the needle in one projection as frequently as necessary but, even so, removal of the



Fig. 1. Roentgenogram showing the amount of the oil injected and also the defect at the third lumbar interspace.



Fig. 2. Roentgenogram showing the amount of lipiodol remaining after aspiration. Note the presence of the needle which is not removed during the examination.

The quality of the roentgenograms is poor because they are made without a Bucky diaphragm.

from the foot of the table which is a more advantageous position for determining the direction of the puncture than is the operator's position directly above the patient. The normal pressure will cause the spinal fluid to flow through the needle when the dural sac is entered and fluid can be withdrawn into a syringe for laboratory procedures. The lipiodol is then injected. We use 4.5 c.c. Many workers use less but we feel that the larger amount is more satisfactory and cannot be objected to as long as it is to be removed later. The usual diagnostic procedures are then done with the spinal puncture needle being left in place.

After the necessary study of the dural sac, the lipiodol is removed. This is apt to be a tedious procedure. The patient is left in the prone position. A syringe is attached to the puncture needle. It is important that this syringe be small. One of 2 c.c. capacity is most satisfactory. Of course

oil is difficult. The puncture needle must be held firmly between the thumb and forefinger of the operator's hands with the rest of the hand braced against the patient's body. A slow and steady pull by the other hand on the barrel of the syringe gives best results, using as gentle a pull as can possibly be used in causing the rather heavy oil to flow through the needle. Great force should not be used. At the beginning of the removal a fair flow of oil may be obtained. Later its flow is apt to be intermittent. This may be due to blocking of the tip of the needle by a nerve root. It may also be due to an improper level of the tip of the needle in relation to the oil in which case spinal fluid only is withdrawn. The level of the tip of the needle may then be slightly changed. If this does not bring about a return of the flow of oil it frequently helps to move the mass of oil away from the needle by tilting the patient and then to bring it back by returning the patient to

the horizontal position. These maneuvers must be employed several times during the course of the removal of the oil.

Practically all of the lipiodol can be withdrawn by patient effort. A drop or two will always remain but the portion left is so small in amount that there can be no objection to its presence in the dural sac.

The following case report illustrates the working of this method:

J. W. was referred to one of us (G. R. K.) by Dr. J. W. Edwards of St. Paul, on March 5, 1941. The family and past histories were negative as far as Mr. W.'s present complaint was concerned, and there was no history of injury. About November 1, 1940, the patient began to notice a "soreness" down the left sciatic distribution. This was aggravated by activity and by January, 1941, Mr. W. was barely able to walk or to sit down. In March the positive neurological findings consisted of pain on left straight leg raising and impairment of touch and pain sense over both lower lumbar and first sacral dermatomes. Roentgenograms of the spine and pelvis were negative and the cerebrospinal fluid was normal with respect to dynamics, cell count, colloidal gold curve, total protein, and Wassermann reaction. The left sciatic pain persisted so that on March 22, 1941, air myelography was carried out. The findings were equivocal and the final diagnosis of Dr. Harold O. Peterson, roentgenologist, was "Possible lesion at the lumbrosacral junction such as a herniated disc, but a final conclusive diagnosis should not be made from these findings. The remainder of the lumbar canal is probably normal." Because of the persistence of symptoms and signs together with the suggestive x-ray findings, surgery was decided upon. Accordingly on April 5, 1941, Dr. Wallace P. Ritchie performed a partial laminectomy on the fifth lumbar vertebra and found a thickened ligamentum flavum. Beneath this a protruded intervertebral disc was found between the bodies of the fifth lumbar and first sacral vertebrae. This was removed. The patient made an uneventful recovery from the operation and was discharged twelve days afterward.

The next time Mr. W. was seen was on December 3, 1941, at which time he stated that eight weeks pre-

viously he had suffered a slight wrench to his back following which he experienced a burning sensation in the calf of his left leg. This was aggravated by motion and had grown progressively worse until the patient was forced to go to bed. The neurological examination was entirely negative but it was felt that a roentgen examination of the spinal subarachnoid space should be made. Because the air myelogram in March had been so inconclusive, it was feared that because there had been previous surgery the same contrast medium would give still less satisfactory information, and the lipiodol technique described above was decided upon.

There was definite evidence of a space taking lesion in the spinal canal at the level of the disc between the third and fourth lumbar vertebrae. Following the taking of spot films, the lipiodol was removed through the spinal needle, all of the oil being withdrawn except for a very small globule.

On December 10, 1941, Doctor Ritchie removed the laminae of the third and fourth lumbar vertebrae on the left side. No evidence of a protruded disc could be found, but the ligamentum flavum was extremely large so it was removed. Following the operation, Mr. W. made an uneventful recovery and left the hospital on January 10, 1942, greatly relieved of his pain but still having some discomfort in the posterior aspect of his left thigh.

Conclusions

1. Iodized poppy seed oil (lipiodol) when injected into the subarachnoid space and allowed to remain there indefinitely is a potentially harmful substance.
2. A method is described by which the substance can be removed from the spinal canal immediately after roentgenograms are made.

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NOISE TO PLEASE ONESELF

"One makes noise to please oneself and language to please mothers and, later, neighbors."

This sums up the child's own feeling about a conflict which makes some children stutter, in the opinion of Dr. John A. Rose, of the Winston-Salem, N. C., Child Guidance Clinic and the Bowman Gray Medical School.

Primary function of speech is self-expression. Imposed on this is the function of communication. When families and their social group place much emphasis on this second function of speech, perhaps hero-worshipping political and religious orators, the child may either struggle against this attitude and become a stutterer or he may take on the family attitude and become a "verbalist."

Fundamentally, stuttering and other speech disorders like feeding and school problems, arise from a "troubled child-parent relationship."

The child guidance clinic, working as it does with both child and parents, therefore has a chance, Dr. Rose believes, even with its limited time, to help with the speech difficulty.—*Science News Letter*, February 28, 1942.

BOILED LIVER EXTRACT IN TREATMENT OF ACNE VULGARIS

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IN March, 1940, Wallace¹ made a preliminary report on the use of subcutaneous injections of boiled liver extract in the treatment of acne vulgaris. The active ingredient was supposed to be a specific skin factor which he called factor S. However, the number of cases treated was small. He states the treatment was fairly successful.

During the fall and winter of 1940 and 1941 I had the opportunity of treating a series of cases at the Students' Health Service of the University of Minnesota. The number of students treated was fifty. There were nineteen females and thirty-one males. The average age was nineteen. The cases were selected at random, and they varied from mild to severe pustular acne.

The liver extract was obtained from a pharmaceutical house and boiled for thirty minutes. The extract was supplied in 5 c.c. ampules and each patient was treated from his individual ampule. The dose recommended was 0.4 c.c. This dose was given twice a week for six weeks, and the results were tabulated at that time as follows: twenty patients showed no improvement; twenty-three showed slight improvement; and in seven there was marked improvement.

The fifty students were given a similar course of treatment with liver extract obtained from another pharmaceutical house, but the dosage was 0.8 c.c. twice a week. The results at the end of this series of injections was the same as in the first course of treatment. Those who showed no improvement after the first course of treatment showed no improvement after the second. Those who showed slight improvement continued to improve slightly and those who showed marked improvement continued to improve slightly.

The average number of injections given for both series was twenty. In the second series some of the students did not receive the twelve injections prescribed.

The only other treatment given during the course of treatment was the local application of a mild astringent solution.

Those who showed considerable improvement

were all of the mild type of acne. The improvement probably can be ascribed to the astringent solution used plus some tonic effect of the liver extract rather than a specific skin factor S.

One patient (Case 4), with no improvement with liver extract, was given six x-ray treatments. The dosage at each treatment was eighty Roentgens and was given once a week. There was considerable improvement. Another (Case 7) had received twenty x-ray treatments in Honolulu over a period of two years. The dosage was not known but must have been rather small. Naturally we did not give any more x-ray. A course of liver extract was given with no appreciable effect. She did say that the x-ray had helped her considerably. Another (Case 15) showed no improvement with liver extract but considerable improvement after six x-ray treatments. In Case 22 there was no improvement with liver extract but marked improvement after four x-ray treatments.

One patient (Case 25) had a constitutional reaction from the injections. She became nauseated after each treatment and the injections were stopped after the sixth treatment. There was a slight improvement. She was then given x-ray treatments. She received only three, but there was considerable improvement.

Summary

Fifty patients with acne vulgaris of varying degree were treated with subcutaneous injections of boiled liver extract. Twenty showed no improvement; twenty-three improved slightly; and seven improved considerably. The few who were later treated with x-ray showed considerable improvement.

Conclusions

1. The treatment with boiled liver extract has been disappointing.
2. When local treatment fails, x-ray therapy should be instituted.

Reference

1. Wallace, Marshall: *Journal Lancet*, (March) 1940.

From the Students' Health Service of the University of Minnesota.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

Frank C. Andrus, Pathologist

Presentation of Case

DR. THOMAS A. PEPPARD: The case is that of a fifty-three-year-old white female office worker whom I saw in consultation with a physician on September 8, 1941, and subsequently. The family history is not pertinent. The patient stated that she had been told by her mother that as an infant her mother, while holding her in her arms against her chest, could feel the baby's heart pounding. As a child she could not indulge in the usual activities with the other children but was forced to sit at one side and watch them play. She had had mumps, catarrhal jaundice, and influenza. She had had no operations. Her menopause had occurred at the age of fifty-two years. She had been employed for many years as an office worker and could carry on that job without any inconvenience. On or about August 27, 1941, she had her beginning symptoms which included occipital headaches, nausea, and vomiting. Later she felt weak and found that she had a fever, her temperature being 103 degrees. She had no chest or abdominal pains. Her weight upon admission was 150 pounds and she had maintained that weight for some time. There was no considerable expectoration or chronic cough. She was admitted to a private hospital with a fever of 102.4 degrees, pulse 112 per minute, and respirations 24 per minute. A tentative diagnosis of pneumonia was made.

Laboratory Data.—The specific gravity of the urine varied between 1.002 and 1.018; it was negative for albumin on some occasions and on other determinations showed a trace. There were no casts or red blood cells at any time. The hemoglobin was 80 per cent on September 2, 1941. The leukocyte count was 11,500 on admission but subsequently dropped to 7,800 and 8,600. On October 10, 1941, a month after admission, the hemoglobin dropped to 74 per cent. She raised some sputum which upon examination showed many organisms, mostly streptococci. Agglutination tests were done but were negative. An x-ray plate taken on September 11, 1941, showed a slight degree of cardiac enlargement with a generalized increase in bronchovascular markings in both lungs with scattered areas of infiltration. She was given sulfonamide drugs in addition to supportive therapy without any appreciable change in her condition. Her temperature ranged between 99 and 100 degrees in the mornings and to about 102 degrees in the evenings; it continued at those levels throughout her hospital stay.

I saw her on October 8 and October 15. She was breathing with some apparent respiratory effort although she stated that she was not short of breath.

There was slight general cyanosis. Careful search revealed no petechiæ on the skin or mucous membranes at any time. There was no adenopathy. The radial pulse dropped back quickly, more so when the arm was raised. Pulsation was felt in the fingertips and capillary pulsation was noted in the fingernails. There was no clubbing of the fingers or toes. There was normal pulsation in the femoral and dorsalis pedis arteries. A systolic sound was heard over the femoral artery but it was not "pistol-shot." No Duroziez murmur was heard. There was no subcutaneous edema. The blood pressure in the arm was 140/65 and in the leg 170/96. The blood pressure on admission had been 154/70. The heart appeared to be slightly larger than normal. A systolic thrill was felt in the second left interspace, more noticeable on expiration. There was normal sinus rhythm. In the first, second, and third interspaces, but more especially in the second, the normal heart tones were largely replaced by a rather harsh, blowing continuous murmur. This murmur was transmitted downward over the sternum. The lungs were resonant anteriorly and posteriorly except for a small area in the region of the right hilus. There were no pleural rubs or any evidence of fluid in the pleuræ. The breath tones were vesicular throughout. At both bases posteriorly, more numerous and extensive in the right base, fine moist rales were heard. There was normal transmission of whispered and spoken voice sounds. The liver was palpable but was not considered to be enlarged. The spleen was enlarged, readily palpable, but not tender. There was no abdominal rigidity, no masses, and no tenderness.

My diagnosis was patent ductus arteriosus with subacute bacterial endocarditis. There were no evidences, however, of embolic phenomena at any time during her stay. I considered that it might have been possible that she had some pulmonary emboli at the time of onset. She had a reasonably good appetite and a sense of well being not common to patients with bacterial endocarditis. She did not develop any anemia as rapidly as such patients often do. A blood culture taken on November 6 revealed a growth with characteristics of *Streptococcus viridans*. The patient was discharged from the private hospital on November 2, 1941.

DR. H. PERLMAN: Following her discharge from the private hospital, she went to a rest home. Three weeks before admission to the Minneapolis General Hospital, she developed dyspnea, orthopnea, and swelling of the legs. She was admitted to this hospital on January 22,

1942. Physical examination on admission revealed a generalized pallor. She was moderately dyspneic and orthopneic. Rales could be heard at both bases of the lungs. The other physical findings were the same as observed previously by Dr. Peppard. The blood pressure at this time was 128/46. A fluid wave and shifting dullness could be exhibited over the abdomen. The liver was palpable 3 cm. below the right costal margin. The spleen was again palpable. There was a three plus pitting edema of the feet and ankles. Slight cyanosis of the fingernails was noted. The venous pressure was 10 cm. of citrate solution. There was no evidence of petechiae at this time.

Laboratory Data.—The hemoglobin was now 55 per cent, the erythrocyte count 2,800,000, leukocyte count 3,800, and the differential count 82 per cent neutrophils, 14 per cent lymphocytes, and 4 per cent monocytes. The urine had a specific gravity of 1.014; it contained a trace of albumin, no sugar, no hyaline casts, 3 to 5 granular casts, and numerous red and white cells. An electrocardiographic tracing showed left axis deviation, slurring of the QRS complexes in all leads, and slight depression of STs. Repeated urine examination revealed from a trace to two plus albumin. The blood urea nitrogen was 28 mg. per cent. The phenolsulphonephthalein excretion test showed a total of 19 per cent in two hours. A blood culture showed *Streptococcus viridans*.

The patient was put on a cardiac regime with limited fluids. She was digitalized and responded nicely. A few days after admission all evidence of decompensation was gone. On January 29 fresh petechial hemorrhages were noted in the conjunctiva of the left eye. The patient was given repeated blood transfusions which raised her hemoglobin to 89 per cent. The erythrocyte count was 4,780,000 and the leukocyte count 13,400. She was given sulfathiazole which had to be discontinued after five days because she complained of nausea and vomiting. The blood urea nitrogen on the 12th hospital day had risen to 35.7 mg. per cent. Her entire course in the hospital was afebrile. Ligation of the ductus was suggested so the patient was transferred to the surgical service on February 5, 1942. Intratracheal administration of cyclopropane was started. The patient stopped breathing after twenty minutes of anesthesia and before any operative procedure could be carried out.

Clinical Diagnoses.—(1) Patent ductus arteriosus; (2) Subacute bacterial endocarditis.
(Roentgenogram shown.)

DR. E. T. BELL: Would you say there was any hypertrophy of the right heart?

DR. OLSON: This is the only film taken and shows only left enlargement.

DR. BELL: You do not see anything there that you could interpret as a dilated pulmonary artery?

DR. OLSON: The vessels seem to be enlarged and there is congestion in both bases.

Autopsy Findings

DR. R. PAPERMASTER: At the time of autopsy no petechial hemorrhages were noted upon careful examination. The heart weighed 490 grams. This weight included the great vessels as we wanted to keep the specimen intact. There was hypertrophy of the left ventricle. There was a patent ductus arteriosus measuring 12 mm. in its external diameter. It arose just beyond the left subclavian artery. There was a semilunar fold just proximal to the external orifice of the ductus arteriosus projecting 6 mm. into the lumen of the aorta. This fold included one-third of the circumference of the aorta. The internal diameter of the ductus arteriosus was 3 mm. in its contracted state. The right auricle and ventricle were not dilated. The tricuspid and pulmonary valves were normal. The root of the pulmonary artery measured 95 mm. in circumference (normal 70 mm.). A patch of vegetations 2 cm. in diameter were present in the conus 1 to 3 cm. above the pulmonary valve. The vegetations were also found surrounding the pulmonary orifice of the ductus arteriosus. The internal pulmonary orifice of the ductus was 3 mm. in diameter. Two recent vegetations were also seen on the medial leaflet of the mitral valve.

There were two infarcts in the lower lobe of the left lung. The spleen weighed 520 grams and showed septic splenitis. The liver weight 1,720 grams and showed evidence of a long standing chronic passive congestion. The kidneys were normal grossly. The remainder of the examination showed nothing of note.

DR. ANDRUS: Microscopic sections of the myocardium show an extensive acute exudative myocarditis with small abscesses and necrosis of muscle fibers. The lesions on the mitral valve and in the pulmonary artery are characteristic vegetations of subacute bacterial endocarditis. The tufts of some of the glomerular capillaries were thrombosed giving the "focal" or "embolic" nephritis so often found in cases of bacterial endocarditis. The pulmonary infarcts had gone on to abscess formation.

Anatomic Diagnoses.—(1) Patent ductus arteriosus; (2) Subacute bacterial endocarditis; (3) Exudative myocarditis; (4) Focal or embolic glomerulonephritis; (6) Myocardial insufficiency; (6) Pulmonary infarction and abscesses.

DR. BELL: This is marked dilatation of the pulmonary artery. I don't know why there was hypertrophy of the left ventricle and not of the right. This is the picture of an arteriovenous aneurysm. That is why the left heart is hypertrophied and why the pulmonary artery is dilated. I should think that the pressure in the pulmonary artery would be increased.

DR. M. SHAPIRO: Practically all of the cases that have been reported show that young people have hypertrophy of both right and left ventricles. This is the only one I have seen that had left axis deviation.

DR. BELL: The right ventricle is not dilated; but you can't understand why the right side is not hypertrophied when it must work against increased pulmonary pressure.

DR. SHAPIRO: How long was the ductus?

DR. ANDRUS: The two vessels were in apposition.

DR. BELL: That is the way they usually are.

DR. ANDRUS: How large is this opening in most cases?

DR. BELL: A pretty fair size opening—3 mm. That makes quite a leak. But it isn't evidently the most severe type because this woman was 53 years old and her trouble was from endocarditis more than from the cardiac anomaly.

DR. SHAPIRO: Whenever a new thing like this operation comes out, we are inclined to rush in and try to help these patients. Among the men who have studied this condition, it is the opinion that this operation should be done in children as young as possible but then only if they are beginning to show signs of beginning cardiac disability. Jones had a number of patients in whom the heart size and the blood pressure returned to normal.

Summary

DR. PAPERMASTER: This condition occurs twice as often in females as in males. In Abbott's series of 150 cases, it was found associated with other congenital defects in two-thirds of the cases. In the ninety-two cases with patent ductus arteriosus as the only cardiac anomaly, the maximum age was sixty-six years, the average age at death twenty-four years. This included twenty cases who died in infancy. The patent ductus arteriosus represents a persistence of the left sixth aortic arch. In some cases, when associated with certain other cardiac anomalies, it acts as a compensatory mechanism to maintain life.

It is generally assumed that a continuous leakage takes place from the aorta to the pulmonary artery (arteriovenous shunt) because the pressure is high in the aorta. This pressure relationship is maintained until some respiratory obstruction sets in, as prolonged crying or coughing, when the pressure in the pulmonary artery becomes greater, a venous-arterial shunt occurs and there is a transient cyanosis. The fact that the pulmonary artery is practically always dilated, and the left ventricle is usually hypertrophied, more than the right, is evidence that the flow is usually arteriovenous. Also, in the infective process that supervenes, the pulmonary end of the ductus and adjacent tissues is always the initial seat of the vegetative inflammatory lesion suggesting that this is the site of strain of a continuous arteriovenous shunt. This leakage of blood from the high pressure aorta to the low pressure pulmonary artery results in a fall in peripheral diastolic pressure and a rise in pulmonary pressure. Subacute

bacterial endocarditis is relatively more common in patent ductus arteriosus than in other congenital heart lesions.

The diagnosis of patent ductus arteriosus is made by physical and x-ray findings. These patients show poor physical development. Physical findings typically consist of the so-called machinery murmur heard over the left upper chest anteriorly and a marked thrill over the same area. However, the murmurs and thrills may be absent if the ductus is very large. Maude Abbott states that only about one-third of the cases have the typical murmur. There may be only a systolic murmur, especially in children. Enlargement of the pulmonary artery to percussion may be demonstrated. Absence of cyanosis in the presence of these other findings is an important diagnostic feature. The systolic pressure is normal and the diastolic pressure is low in typical cases. Peripheral signs of aortic regurgitation may be found.

Treatment of patent ductus arteriosus has been limited to the usual treatment of its complications, especially heart failure and bacterial endocarditis. A new treatment has recently been described, namely, ligation of the ductus. Gross has reported thirteen cases of successful ligation of the patent ductus arteriosus. One case died two weeks postoperatively due to *Staphylococcus aureus* infection. Only one other case derived no benefit from the procedure. Gross noted the following benefits in his cases: (1) the thrill ceased; (2) the diastolic pressure rose but the systolic pressure remained normal; (3) the activity and excursion of the heart decreased; (4) growth and development improved; (5) dilatation decreased but hypertrophied hearts did not change; however, the cardiothoracic ratios approached normal in one and one-half to two years postoperatively; (6) those who had had episodes of orthopnea, dyspnea, and cyanosis no longer had them; (7) there was a subjective and objective increase in ability for physical activity. Jones, Dolley, and Bullock reported thirteen cases successfully ligated. One of these died of subacute bacterial endocarditis. The possibility of treating bacterial endocarditis in cases with patent ductus by ligation has also been advanced. The first case of subacute bacterial endocarditis cured by ligation was reported in 1940 by Tour-off and Vasell. In this patient the ductus was divided and doubly ligated. The blood became sterile and the patient was reported to be living and well thirty-six weeks after operation. These workers also report three other similar cases, two died of hemorrhage at the time of operation, one died thirty-two weeks postoperatively of bacterial endocarditis.

CASE REPORT

ESOPHAGEAL PERFORATION FROM A STOMACH TUBE

JAMES M. HAYES, M.D.

Minneapolis, Minnesota

PERFORATIONS of the esophagus have been reported quite frequently but so far as I know perforation of the esophagus by means of a soft rubber stomach tube has not been reported.

severe immediately. Emphysema may develop rapidly. The patient becomes very ill almost at once, and evidence of shock comes on early. Fever and leukocytosis develop early.

The extension of infection from the perforation into the mediastinum is the dangerous factor. The arrangement of the facial planes in the neck is an interesting study as related to the extension of the infection into the mediastinum. I shall not, however, attempt a discussion of these planes in this paper. Pearse has well described the anatomy of these planes. From his discussion it would seem that a perforation of the esophagus on the anterior or lateral surface would be less likely to result in the extension of the infection to the mediastinum than in the case of a posterior perforation. According to Pearse the retrovisceral space is the most important highway of communication between the neck and chest. Perforation of the thin posterior wall of the cervical esophagus brings the retrovisceral space in contact with infection. This in turn is in direct communication with the posterior mediastinum, one of the most dangerous areas in the human body for acute infection to lodge. When this takes place, without time for a walling off process to take place, a surgical emergency exists in which time is an important element.

Case Report

Mrs. R. O., aged 53, was normal physically up to the time of this accident. About 6 p.m. she was eating a chicken dinner at home. Suddenly something lodged in her throat, and she became quite desperate. Her daughter ran to the phone and called a doctor living close by. The daughter was very much excited and told the doctor to come in a hurry, that her mother was "choking." He picked up a soft rubber stomach tube and rushed over to the house immediately. When he arrived the mother seemed in desperate condition. She was cyanotic, apparently not breathing and in marked collapse. He immediately attempted to pass the stomach tube, hoping to dislodge the material in the esophagus. She did breathe better for a short time, but the pain was intense so she was rushed to Asbury Hospital where Dr. Boies was called and passed the esophagoscope. He extracted a small piece of bone from the upper esophagus. At the same time he observed a perforation in the posterior left area of the esophagus. She continued to have severe pain, dyspnea and dysphagia, and the following day a marked emphysema developed in the left side of the neck and out over the left shoulder.

I saw her about noon on the following day and operation was begun about 2 p.m. that same day.

Operation.—An incision was made in the left side of the neck along the lower medial border of the sternocleidomastoid muscle. This muscle was then retracted,

(Continued on Page 306)

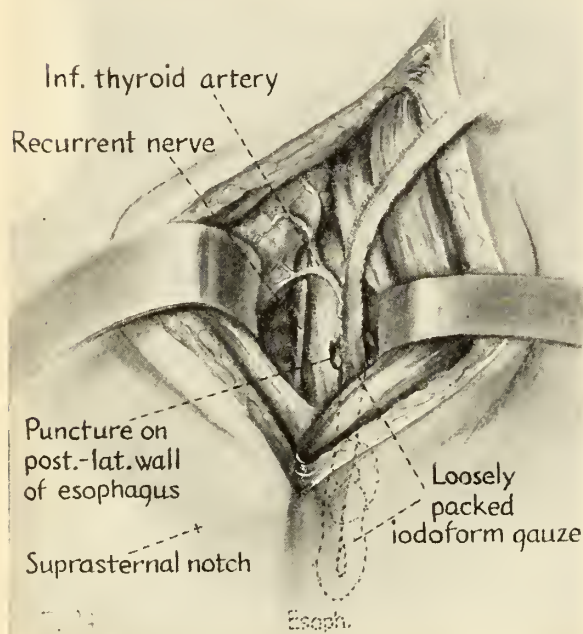


Fig. 1. Structures involved in operative procedure.

Perforations of the esophagus are usually classified under three main types:

1. Slowly perforating, or erosion by a foreign body lodged in the esophagus.
2. Minute perforations, such as those made by pins, fishbones and the like.
3. Gross, immediate perforations produced by instrumentation or tearing of the wall during removal of a sharp body.

In the first two, an inflammatory process may be set up that produces a protective mechanism that prevents the extension of the infection into the posterior mediastinum.

The third is the most serious and the resulting signs and symptoms are the most pronounced. Local pain and that radiating into the chest and shoulder is usually

Reported before the Minneapolis Surgical Society May 1, 1941.

HISTORY OF MEDICINE IN MINNESOTA

HISTORY OF THE MINNESOTA STATE MEDICAL SOCIETY

By ARTHUR S. HAMILTON, M.D.

Minneapolis, Minnesota

(Continued from March issue.)

Third Semi-Annual Meeting

The third semi-annual meeting of the State Medical Society was held at Minneapolis, June 13 and 14, 1871, in the Pythian Hall, with fifty-four members present. A letter of regret at his inability to be present was read from Dr. Samuel Willey, whose health had required his removal to Bayfield, Wisconsin, and a committee was appointed to send greetings to him.

Drs. A. E. Ames and N. B. Hill, delegates from the Minnesota State Medical Society, reported the meeting of the American Medical Association at San Francisco. The two interesting items in their report were the comment on Dr. Hewitt's paper on "Climatology of Minnesota," which had been very favorably received, and the action on the reception of delegates to the American Medical Association from "female colleges" already discussed.

Those elected to membership at this meeting are listed at the end of the volume. Dr. A. A. Ames, of San Francisco, was elected an honorary member.

Later it was agreed to extend the annual meeting from two to three days, but there is no evidence that the change was actually made effective at the next meeting.

Dr. Brewer Mattocks of Saint Paul, as essayist for the meeting, read a paper on "Diseases of Children." Dr. Mattocks said in his paper that the nature and treatment of diseases of children was the same in principle as in the diseases of adults; that the matter of children's diseases was not a specialty in the profession and that children were governed by the same laws of being as adults. His views were sharply contradicted by Dr. Hewitt, of Red Wing, who took the ground that the child was an imperfect immature being, whose pathologic conditions were essentially distinct from those of human maturity.

A very elaborate dinner was served to the members by Dr. and Mrs. A. E. Ames at their new home at Fourth and Ames Streets on the evening of June 13. The doctor's grounds were exceptionally beautiful and the banquet included everything good to eat but the next morning's *Tribune* informs us that dancing, cards and wine were tabooed.

On the following morning, and after much discussion and considerable opposition, Dr. Stone's bill legalizing dissection, to be presented to the next Legislature, was adopted.

Dr. W. W. Mayo reported a case of rectocele of fourteen years' duration which was finally cured, and Dr. C. G. Goodrich reported a case of ovarian cyst in a child of eight years.

Dr. Stone, as editor of the *Northwestern Medical and Surgical Journal*, referred to the articles of Mattocks, Mayo and Goodrich as the most noticeable features of the meeting. All appear in the Transactions for 1872, and Dr.

Mayo's report is also found in the *Northwestern Medical and Surgical Journal*, Vol. II, No. 1.

In an editorial of July, 1871, in his *Journal*, Dr. Stone urged that all regular physicians join the State Society and, to make this effective, he advised that a law be passed forbidding members of the Society to consult with anyone not also a member of the Society.

Fourth Annual Meeting

The fourth annual meeting of the Minnesota State Medical Society was held in the United States Court Rooms in Saint Paul, on February 6 and 7, 1872. Dr. Franklin Staples presided and seventy members were present.

New members were elected and later in the meeting Dr. A. E. Ames introduced Professor Thayer, formerly of Vermont, who appears to have been connected with the Northern Pacific Railway. He was cordially received and elected an honorary member.

It was again reported that no essays had been received in the contest for the prizes offered.

Dr. A. B. Stuart, from the special Committee on Legislation, reported a memorial and Bill to establish a State Board of Health, which was accepted and ordered printed.

For some years past it had been the custom for Iowa, Wisconsin and Minnesota to appoint official representatives to each other's annual meeting. On this occasion, Dr. Marks was present from the Wisconsin State Society, probably the first official delegate to actually appear at a Minnesota State meeting.

Dr. Stone announced that the bill formerly known as the bill to legalize dissection but now more euphoniously known as the Anatomy Bill or the Bill to Promote the Science of Medicine and Surgery in the State of Minnesota had been laid before the legislature and would undoubtedly pass if it met with the *unanimous* approval of the Society, which unanimous approval was accordingly given.

In the course of preceding years a rather elaborate system of committees and delegates dealing with different phases of medicine had gradually grown up, and at this time included the following: Executive Committee; Finance Committee; Publication Committee; Committee on Ethics; Committee on Medical Societies; Board of Censors; Essayist for the Annual Meeting; Delegates to American Medical Association; Delegates to Wisconsin State Medical Society; Delegates to Iowa State Medical Society; Committee on Necrology; Committee on Epidemics, Climatology and Hygiene; Committee on Practical Medicine; Committee on Surgery; Committee on Obstetrics; Committee on Gynecology; Committee on Ophthalmology; Committee on Materia Medica; Committee on Medical Education; Committee on Medical Jurisprudence; Committee on Diseases of the Nervous System; Committee on Prize Essays.

Most of these committees from time to time made special reports, but that of Dr. Sweney's Committee on Epidemics, Climatology and Hygiene for this year, deserves special mention. It appears in the current transactions† and covers nearly sixteen pages. The Committee had sent out a questionnaire to all practitioners of the state in good standing, numbering about one hundred and fifty, but only eighteen responses were received. Goodhue County particularly distinguished itself, in that every regular practitioner save one answered.

In view of the elaborate observations reported from Dr. Sweney's committee,

†Trans. Minn. State Med. Soc., pp. 60-76, Feb. 6 and 7, 1872.

it is impossible to give any satisfactory abstract, but it should be stated that the findings cover a wide range of clinical conditions and deserve high commendation. They still make a distinction, though not clearly, between enteric or true typhoid on the one hand, and typhomalaria on the other. Clinical distinctions are discussed at considerable length but the wide difference in the type of cases reported from different localities make one feel that they did not all use the same terms with the same value. In not one instance are the anatomic features of typhoid invoked for diagnosis or even described. The general statement is made that enteric fever shows a decided decrease for the year and there is also a much less widespread appearance of the enteromalarial form. Paludal fevers have been more than usually prevalent though generally of a mild type and, whatever this paludal disease may have been, it certainly had many of the characteristics of enteric fever. Some localities reported remittent fever as much more prevalent than intermittent, while others state that the conditions are exactly the reverse.

The discussion as to the climate and phthisis still goes on. "Strumous" children frequently lose all trace of the disease, and "scrofula" is less frequent and less severe than in the East. Phthisis pulmonalis in its early stages is generally benefited but there is obviously a growing doubt that the late stages are in any way helped.

From the Committee on Surgery, Dr. Hewitt gave a very well prepared résumé of "The History and Rationale of the Antiseptic Treatment of Wounds," and the following is quoted from the report of the Committee on Surgery as showing the line of surgical thought:

The special topics proposed involved many important questions now under discussion by surgeons, e.g.: The Germ Theory of Disease; Antiseptic Treatment of Wounds; Kind and Form of Sutures; Use of Solutions, Oils, Unguents, Poultices, Glycerine, Alcohol, etc.; Frequency of Dressing; Effect of Diathesis, Position and Temperature and the Aids Available through the General System, as Iron, Opium, Ergot; Union by First Intention; Union by Second Intention; Management of Ulcers and the Use of Transplanted Skin; Counter Irritation as a Surgical Remedy.

Dr. Staples read his address on "Professional Ethics." He congratulated the Society on its progress. In its three years of existence it had gathered 143 members and had lost two by death. Dr. E. H. Smith, former secretary of the State Society, died of phthisis pulmonalis on February 12, 1871, and Dr. Perry Chance died at Delano on November 19, 1871. Four members of the Society had moved from the state during the year.

In his inaugural address on February 7, Dr. Mayo, the new president, paid his respects to the retiring president, Dr. Staples, and especially to the preceding officer, Dr. Samuel Willey, who appears to have been held in the very highest esteem by his fellow practitioners.

The Society was still eager to dispose of its prize essay fund and reported the following subjects for prize essays for the ensuing year:

1. *Phthisis Pulmonalis.*
2. *Rheumatism and Catarrh as Elements in Uterine Disease.*

Dr. Hewitt proposed the following amendments to the By-Laws governing the Society:

The general meetings of this Society shall be restricted to the morning sessions, and the afternoon and evening sessions shall be devoted to the hearing of reports and papers, and their consideration, in the following Sections:

1. Chemistry and Materia Medica.
2. Practical Medicine and Obstetrics.

3. Surgery and Anatomy.
4. Meteorology, Medical Topography, and Epidemic Diseases.
5. Medical Jurisprudence, Hygiene and Physiology.
6. Psychology.

The several sections mentioned above were to be held to a high level of scientific procedure, and no papers or reports were to be issued from the sections except such as might fairly be classed under the following heads:

- 1st. Such as may contain and establish *positively* new facts, modes of practice, or principles of real value.
- 2nd. Such as contain the results of well-devised original experimental researches.
- 3rd. Such as present so complete a review of the facts of any particular subject, as to enable the writer to deduce therefrom legitimate conclusions of importance."

Dr. Hewitt's motion was laid over until the next meeting and finally was not sustained, but the following, introduced by Dr. T. T. Mann, was adopted:

RESOLVED, That a committee of five be appointed to report at the annual meeting of 1874, upon the influences which the, external aspects of nature exert upon the imagination and understanding of man; and to what extent the physical organization is changed or modified by such influences.

The Committee on Medical Education made a somewhat lengthy report, but this will doubtless be covered in the Division of Medical Education.

A single sentence from the report of the Committee on Medical Jurisprudence shows that evils now complained of were well recognized in 1872: "The moral, intellectual and professional status of medical experts should be elevated."

The transactions for this meeting close with a copy of a proposed Act to establish a State Board of Health, and an Act to promote the Science of Medicine and Surgery in the State of Minnesota (the so-called Anatomical Act).

The Northwestern Medical and Surgical Journal,* a very short time later, announces the passage of the Anatomy Bill, legalizing dissection in Minnesota, and also the passage of the State Board of Health Bill. The Anatomy Bill passed the Senate by a vote of twenty-seven yeas to three nays, and the House by a vote of sixty-eight yeas to five nays. Dr. Stone gives special credit to Hon. D. M. Sabin of Stillwater for the successful passage of the bill.

The State Board of Health Bill also passed on March 4, 1872, after a severe and prolonged struggle and an apparent defeat, it being saved only by the action of the Committee, in whose hands it had been placed, cutting down the appropriation to five hundred dollars. Again it nearly met defeat at the hands of the Governor and Dr. Stewart is given credit by Dr. Stone, for its salvation.

The Board of Health Bill called for seven members, of whom five were appointed at the time—Drs. D. W. Hand, N. B. Hill, A. B. Stuart, C. N. Hewitt, and A. W. Daniels. Drs. Vespasian Smith, of Duluth, and G. D. Winch, of Blue Earth City, were added under announcement of June 11, 1872. The first meeting of the Board was held in the office of Dr. Hand, March 26, 1872. According to Dr. Hand, this was the third Board of Health to be established in the United States, Massachusetts having preceded us five years, and California two years. The Board organized by electing Dr. A. B. Stuart of Winona as president, and Dr. C. N. Hewitt of Red Wing as secretary, selections which could hardly have been better made in Minnesota at that time. Dr. Hewitt, in particular, had already met with national recognition in public health work.

Dr. Hewitt continued as secretary of the Board until 1897, a period of twenty-five years and during this time his work met the highest approval, both at home

*N. W. Med. and Surg. Jour., Vol. II, p. 384, Feb. and March, 1872.

and abroad. His first year's meager salary was \$200; for the following year it was \$500, and was gradually increased to \$2,500 in the year 1893. On January 11, 1897, Dr. Hewitt learned that he had not been reappointed to office. For this act there has been no official explanation though Dr. Folwell suggests that the probable explanation can be found in the Folwell papers. In his reports for 1895-1896 (p. 14), Dr. Hewitt wrote as follows: "The best of my life and effort have gone into this work. I have spared neither time, labor nor thought to make it what it ought to be. Such as it is, the record is made and closed."

The *Northwestern Lancet** contains an editorial on the failure of the Governor to reappoint Dr. C. N. Hewitt to the State Board of Health. As the *Lancet* puts it:

This has called forth a loud and indignant protest from the medical profession of the whole state, a protest to which has been joined the voice of those members of the laity who have been in a position to know of the excellence of Dr. Hewitt's work for the maintenance of the public health, and the unlikelihood that it will be possible to find another man for the position who will be as faithful, as industrious and as successful in the work as he. Twenty-five years ago, when Dr. Hewitt took office, in connection with the public health service, the science of preventive medicine as applied to communities was in its infancy. Except in the case of smallpox there was practically no such thing as quarantine against contagious disease, outside of that maintained at ports of entry against vessels from places where yellow fever or cholera existed. In Minnesota, attempts to control outbreaks of epidemic diseases had rarely been made, and had been feebly executed. The extent of territory to be covered was so vast, and in many parts so thinly settled, as to discourage the thought of providing it with efficient health service. Yet this was the very task which Dr. Hewitt undertook, and carried through so successfully that Minnesota is known more or less as a model state in this respect.

The Legislature of 1872, besides what appears already on the record, passed Acts to punish abortionists and attempts to procure abortion; an Act to require all incorporated villages, cities and towns to establish a local board of health; an Act to appropriate \$100,000 to complete the Minnesota Hospital for the Insane; and an Act allowing a physician, called to make a professional postmortem examination, \$6.00 a day and 10 cents per mile for mileage.

Fourth Semi-Annual Meeting

The fourth semi-annual meeting of the Minnesota State Medical Society was held at Rochester, June 11 and 12, 1872, with Dr. W. W. Mayo in the chair, and thirty members present. The minutes of the meeting are rather limited, though the *Northwestern Medical and Surgical Journal* describes it as one of the most pleasant meetings of the Society on record. It is stated that "harmony and good feeling prevailed; none of the much-vexed questions of ethics arose."

The *Northwestern Medical and Surgical Journal* for December, 1872,† contains a review of Dr. Hewitt's report to the American Medical Association on the "Climatology and Epidemics of Minnesota." As Dr. Hewitt was secretary of the Minnesota State Board of Health, and as he had written extensively on the relation of the climate of Minnesota to disease, it may not be out of place to quote here the review as given in the *Journal*:

"The epidemic fevers, enteric, entero-malarial, intermittent and remittent, and cerebro-spinal meningitis, are shown to be present here, although not violent or extensively prevalent; and under the heading of 'Diseases of the Respiratory Tract,' the effect of this climate on catarrh, bronchitis, and phthisis is ably discussed.

"It seems to be pretty generally acknowledged that we do have a large amount of nasal catarrh in this state, which generally follows an attack of influenza; yet so many of the

*N. W. Lancet, Vol. 17, p. 31, Jan. 15, 1897.

†N. W. Med. and Surg. Jour., Vol. III, No. 6, p. 245, (Dec.) 1872.

invalids coming here from other parts of the country are found to have had chronic catarrh for years past, we incline to believe the disease is by no means peculiar to Minnesota. The benefits derived from a residence here by persons of a strumous diathesis are not overstated, and a timely warning is given that patients with well developed phthisis cannot expect relief."

Fifth Annual Meeting

The fifth annual meeting of the Minnesota State Medical Society was held in Saint Paul, February 4 and 5, 1873. Dr. W. W. Mayo presided.

An interesting item in the treasurer's report shows that the prize fund, though subject to call at any time, was invested at 12 per cent.

Dr. Staples of Winona was awarded the prize for his essay on Catarrhal Inflammation as an Element in Uterine Disease, and Dr. H. C. Hand of Saint Paul was prize winner with an essay on "Phthisis Pulmonalis." Competition was easy, however, since in each instance but one essay was forthcoming. The illustrations accompanying Dr. Staples' article are the first observed in the transactions up to this date.

Dr. Hewitt's proposed amendment to the By-Laws in reference to the formation of sections in the Society was laid on the table.

The report of the Committee on Practical Medicine for this session is made up of a study of Epidemic Cerebro-Spinal Meningitis. The report is written by Dr. Albert E. Senkler, Saint Cloud, who later moved to Toronto, Canada, and still later returned to Saint Paul, but the article is based on the experience of eight members of the profession who sent in data, in addition to Senkler's personal experience. As was true in other epidemics, Dr. Sweney's experience is widely quoted.

Ten new members were admitted to the Society, all nominated except Miss H. E. Preston. The objection to admitting women was paramount but the reason alleged for rejecting her application was because the Woman's Medical College, of which she was a graduate, had not yet been recognized by the American Medical Association.

The Committees on Obstetrics, Gynecology, Materia Medica and Ophthalmology presented no reports.

Dr. N. B. Hill of Minneapolis was elected president for the ensuing year.

The special committee appointed on revision of the Constitution and By-Laws submitted a report, which was laid on the table until the next meeting.

The committee made extensive revisions and urged that such a change be made in the By-Laws that all ethical questions be referred to a judicial council, and, as far as possible, be kept out of the public meetings, and after lengthy discussion these resolutions were adopted.

(To be continued in May issue.)

President's Letter

REDUCING DEATHS FROM CANCER

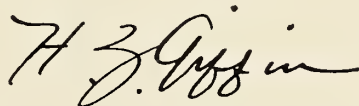
I

WE TURN aside from the war this month to a consideration of the ancient and honorable campaign against cancer. With over 150,000 deaths a year from cancer, nothing can be more important. It is well to consider what is being accomplished by lay organizations and by the medical profession. The American Society for the Control of Cancer and the Woman's Field Army are doing excellent work, especially in Minnesota, and deserve all the coöperation the Minnesota State Medical Association can give. Dr. M. W. Alberts, Chairman of our Committee on Cancer, has been very active and interested in this respect. It is suggested that the Woman's Auxiliary of our state association could very well coöperate more actively with this organization. Other lay organizations and also insurance companies have assisted in education of the public concerning symptoms. So thoroughly has information been disseminated that some physicians have feared the increase of cancerphobia but I suspect that those who develop cancerphobia would have some type of "phobia" in any circumstances. Abnormal fear is a psychotic phenomenon.

What is the State Medical Association doing and what is the physician's responsibility? The Medical Association through its committee on Public Health Education, its radio talks and press releases is assisting very effectually in education of the public. The University at its Continuation Center and the State Association by its packet of the month are giving postgraduate instruction in early diagnosis and treatment. But in the last analysis an improvement in the situation is the responsibility of each attending physician and each patient. The physician must "keep up" with the education of the public and the patient must accept the physician's advice. When a patient presents himself for examination he deserves a conscientious study of the case and not a pat on the back. Reiteration of the instances of cancer of the rectum which have been operated upon for hemorrhoids has led to a very marked improvement in early diagnosis of cancer of the rectum. The general use of x-ray and lately of gastroscopy has improved statistics on the diagnosis of cancer of the stomach. The situation with respect to cancer of the breast is not so favorable. There is a general tendency to observe tumors of the breast—and the patient may not return at the appointed time for observation. Definite nodules and discrete areas of mastitis are easily removed for microscopic examination and should not be "observed." Diffuse involvement of the breast during lactation should not be confused with "caked" breast. The physician should not hesitate to have early consultation in a situation so important. Consultation is as necessary for tumors of the breast as for tumors elsewhere. Their very accessibility is apt to lead to fatal procrastination. Approved cancer clinics are essential and fortunately are available in this state. If each of us will assume his responsibility with respect to cancer of the breast, real progress will have been made in early diagnosis and cure. Prevention of cancer must await further research.

II

I would like to call attention to the free home for people suffering from incurable cancer recently opened in Saint Paul—Our Lady of Good Counsel Free Cancer Home. Details are given on page 218 of the March, 1942, issue of MINNESOTA MEDICINE.



President, Minnesota State Medical Association

EDITORIAL

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J. R. BRUCE

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THE DOCTORS AND THE AMERICAN RED CROSS

THE communication in this issue from Dr. John
S. Lundy, chairman of the First Aid Red
Cross Committee for the State Association,
should be read and the purposes carried out by
all in a position to serve in our civil defense pro-
gram. The item of standardization is given first
emphasis: everything in the First Aid Red Cross
manual may not exactly express what each one
teaching a group would like to express. How-
ever, there is not time to depart from a general
method which has already proven its worth.

The physicians in each community must not lose

the opportunity to hold to their time honored po-
sition in the field of direction of matters primarily
medical. We shall need all possible salvage (and
there is always considerable) from this war period
and effort. There is a large group of women
ready and eager, searching for outlets for their
skills in the routine of Red Cross. Then if fate
visits upon us actual local bombing and devasta-
tion the field work will call for more than pa-
triotic display: actual detailed training and expe-
rience will be indispensable. As for the lady
who came into a Red Cross group and said, "As-
sign me some important assignment; no puttering
and fussy detail," even she has a place, if some-
one can help her find it.

E.L.T.

CIVILIAN DEFENSE IN MINNESOTA

A COUNTRY at war today requires, in addi-
tion to its armed forces, provision for
civilian defense. Although the interior of the
country is not so likely to suffer from bombing
and sabotage of industrial plants, means of trans-
portation and communication are an ever-present
hazard. For this reason organization for increas-
ing the protection of the state by the addition of
volunteer fire fighters and police, and the provi-
sion for greatly augmented emergency medical
aid in the event of unusual disasters is vital.
The medical profession has of necessity an im-
portant part to play in this part of the program.

In providing for the medical part of civilian
defense in the state, the Governor appointed Dr.
A. J. Chesley, secretary of the State Board of
Health, to organize this phase of defense. Dr.
Chesley has called in the state associations of
physicians, dentists, pharmacists, veterinarians,
nurses and hospitals for their coöperation, and
he has appointed health officers throughout the
state to coördinate the local organizations of the
above mentioned professions. Committees have
been, or are being, appointed by the local profes-
sional societies to provide for medical care in
case of need.

The needs for civilian defense differ in our
state from those in the sea border states. The

Governor has wisely adopted only regulations suited to our location.

The needs in our state are the greatest in the centers of population and industry. The medical phase of civilian defense will assist in providing for first aid units and their transportation to the site of the trouble, and ambulance transportation of victims in case the usual facilities do not suffice. Hospitals are to provide emergency first aid units consisting of two doctors, two nurses and two stretcher bearers, and a car for their transportation, all on call day or night. Such a unit should carry equipment in the form of splints, dressings, et cetera, and the unit should be ready to respond at a minute's notice. The doctors in such a unit need not be trained surgeons, for victims in need of operations will be transported to hospitals for operative care. Provision should be made for sufficient ambulance transportation. The offer of the State Association of Morticians to provide emergency transportation should aid in solving this problem. Doubtless local Red Cross units have station wagons in their motor aid group, which can be easily converted to carry one or two victims on stretchers. In addition to these preparations, plans have been made in the larger cities for first aid centers in outlying districts where supplies will be available day or night for neighborhood doctors and nurses. Certain industrial plants, particularly those on twenty-four hour shifts, and already equipped with a nurse and first aid equipment, constitute desirable first aid centers. We would suggest that physicians on call for such first aid service carry splints and a first aid kit in the trunks of their cars.

The part played by the local hospitals is undoubtedly the back bone of the medical side of civilian defense. It is the part of each hospital to supply the first aid units and to provide for emergency surgical aid in case of need. Each hospital will utilize the service of its medical staff and its nurses and will have available a number of beds in case of emergency.

Associated in the medical part of civilian defense are other groups such as dentists, pharmacists, veterinarians and the State Sanitary Conference. Fully as important as the organization of defense units on paper, is the provision of a mechanism for calling out promptly the individuals and units when needed. In the larger centers there will be a central headquarters estab-

lished for receiving information and for sending out calls for various defense units.

PREPAYMENT MEDICAL PLANS

THERE appears elsewhere in this issue a summary of the first meeting held under the auspices of the American Medical Association devoted to the discussion of the various kinds of prepayment medical plans in operation throughout the country. Meeting the cost of illness often is a difficult matter. The medical profession is interested in working out the best methods of financing the various items involved.

Many commodities are today purchased on the monthly installment plan—doctor's services included. No particular mechanism is needed to provide for monthly payments on doctors' bills, although it must be admitted that patients are more likely to pay a loan company regularly than a doctor.

It is, however, the hazard of the costly illness usually requiring hospital and nursing care as well as the services of a physician or surgeon which has prompted so much present-day discussion. Even those on a small income have no real difficulty in paying for an occasional visit from the general practitioner.

Insurance payable in small monthly installments affords an answer to the problem for many and is the basis of most of the organizations in operation. There has been, of necessity, much groping in the dark because of lack of experience and statistics.

Hospital insurance went through the same groping process and is apparently becoming firmly established. It is to be hoped the same will be true of medical insurance, although its problems are more involved. The fact that few like to be patients in a hospital and the provisions made by hospital associations to increase the benefits to members according to experience make it unlikely that much abuse will be made of membership. When it comes to a physician's services experience is less predictable.

Some prepayment medical organizations are confronted with fine legal distinctions. If they pay their own doctors and limit members to the services of designated physicians, they are practicing medicine and it is illegal for a corporation to practice medicine. If they agree to pay doctors' bills and allow free choice of physician their services are in the nature of insurance. Free

choice of physician is apparently the distinguishing feature between legality and illegality. Free choice of physician is what the medical profession has insisted is a requisite for best medical service. Free choice of physician is what some think is not at all necessary for the other fellow, but insist upon for themselves. Fortunately, most Americans value highly this feature of the American way of life.

AMERICAN COLLEGE OF PHYSICIANS MEETS IN SAINT PAUL

WAR or no war, it was the consensus of opinion of the officers and the Board of Regents of the American College of Physicians that the annual meeting of the College should and would be held in Saint Paul in April. Plans had gathered considerable momentum before Pearl Harbor and the momentum of such a large organization is considerable.

The program has long since been in the hands of its members. Dr. Roger I. Lee of Boston is this year's president and George Morris Piersol of Philadelphia, the secretary-general. The Board of Regents represent the continent from Boston to San Francisco and Montreal to Galveston.

The College meets in Saint Paul from April 20 to 25 on invitation of the Ramsey County Medical Society, backed by the Hennepin, Saint Louis and the Olmsted-Houston-Fillmore-Dodge County Medical Societies, the Minnesota Society of Internal Medicine, the Minnesota State Medical Association, the Medical School of the University of Minnesota, and many individuals in positions official or otherwise. The program speaks for the efficient management of Dr. John A. Lepak, local chairman, supported by the local committees.

Each morning during the session (except Monday) will be devoted to clinics at the Saint Paul hospitals and the University by visitors and local physicians. Panel discussions will occupy each noon hour (except Monday), and will be presided over by Minnesota physicians assisted by visitors. General sessions consisting of addresses by visiting physicians for the most part will occupy each afternoon.

Following the evening scientific program on Monday the annual smoker will be held by the College. The Ramsey County Medical Society will stage a light entertainment on Tuesday eve-

ning. The annual convocation, at which the president will give his address and newly elected Fellows will be presented, is to be held Wednesday evening and will be followed by a reception and dance at the Hotel Lowry. The banquet is scheduled for Thursday evening. Dr. Lepak will act as toastmaster and guests will be addressed by Dr. W. A. O'Brien.

Attendance at the sessions is not limited by any means to members of the College. Members of Ramsey and Hennepin County Medical Societies, interns of the various Saint Paul hospitals, medical students at the University of Minnesota and the Mayo Foundation, and members of the Medical Corps of the United States and Canada will be admitted free. Other qualified physicians may attend upon payment of a \$12.00 fee (which includes a year's subscription to the *Annals of Internal Medicine*).

Teas, luncheons and other forms of entertainment, in addition to the evening social affairs, will be provided the visiting women.

Mention should be made of the technical exhibits. Effort has been made to limit the exhibits to those of scientific interest in internal medicine, all irrelevant products having been excluded.

While the annual sessions of the College of Physicians might well be of interest to the profession in general, they are held primarily for those interested in internal medicine. The meeting of the College in Saint Paul this month provides a rare opportunity for internists of the North-Central district of our country.

CONFERENCE ON MEDICAL SERVICE PLANS

The first Conference on Medical Service Plans was held in Chicago on February 14, 1942, at the headquarters of the American Medical Association and the Palmer House. A total of sixty-four persons were present, including representatives from operating and proposed medical service plans in seventeen states and officers of state and county medical societies.

Dr. Olin West, Secretary and General Manager of the American Medical Association, welcomed the representatives and stated: "You are distinctly a part of a great movement that is essential to the welfare of the people of this country and it is highly desirable that you should get together to exchange information and opinions in order to arrive at a basic understanding of the problems involved."

Mr. J. D. Laux of Michigan Medical Service, who was elected Chairman of the Conference, indicated that interest in some form of prepayment for medical services has been moving along three well-defined fronts: (1) group clinic or consumer plans such as the Ross-

Loos Clinic or the Transport Workers Medical Plan, of which there are seventeen such plans in operation with a total enrollment of 100,000 persons; (2) employee-employer mutual benefit associations (300 in operation) and the commercial insurance company plans (at least 250) providing cash indemnity benefits totaling \$365,000,000 annually; and (3) non-profit medical service plans sponsored by medical societies, of which there are 33 plans in operation in 9 states with an enrollment in excess of 750,000 persons. The non-profit medical society sponsored programs are developing most rapidly and give the best promise of contributing toward a better distribution of medical service.

The entire day was devoted to consideration of the basic principles and major problems involved in medical service and limited surgical benefit programs sponsored by medical societies. The following are some particularly pertinent points brought out in the discussion:

- Contract practice plans limiting service to a small number of physicians cannot provide a satisfactory service for an entire community. Non-profit community-wide or state-wide service plans are the proper type of organization for prepayment of medical services.

The statement that voluntary plans lead to compulsory insurance applies to the chaotic situation created by a multiplicity of lay controlled or commercial plans, not to medically sponsored community programs.

- In medical society sponsored programs, the contribution of the profession is the offering of services without additional charge to persons in the under-income group. Under a plan providing cash indemnity, the only thing the medical profession furnishes—service protection to the individual—would be taken away.
- Experiments in the full coverage type of medical service plan are being undertaken to determine the effect of such plans on the private practice of medicine; how such plans affect the physician-patient relationship; what problems arise in connection with the practice of specialists; the difference between urban, rural, and metropolitan practice; and all general problems relating to medical care.

- A differential arrangement for specialists is a problem which one medical service plan treats in the following manner: When a subscriber uses a specialist as his family physician, the specialist receives general practitioner fees for such service. However, in the event the subscriber is referred to a specialist by his family physician for special services, an increased fee is paid. To be eligible for increased fees, the specialist must confine himself strictly to his specialty.

- Enrollment based on individual physical examinations does not furnish as good selection as group enrollment.

- The desirability of establishing somewhat uniform or model legislation for medical service plans was emphasized.

- The question of the extent of joint operations with hospital service plans and the appropriate basis for cooperation led to the establishment of a committee to meet with a committee from the hospital service plans.

- It is of utmost importance to establish a centralized agency for the collection and dissemination of information. R. G. Leland, M.D., Director of the Bureau of Medical Economics of the American Medical Association, outlined a program of co-ordination through establishment of a glossary of terminology, an organizational outline of the plans, and a composite tabulation of financial and statistical reports.

The Conference concluded with the appointment of a committee to determine the best method of establishment of a permanent organization of medical service plans throughout the country.

Communication

Committee on First Aid and Red Cross

The members of the First Aid and Red Cross Committee were unanimous in the belief that, because of the urgency of the present situation, they would follow the standard Red Cross First Aid Textbook in teaching first aid.

It was agreed also that, in order to avoid confusing the students, the book would be followed just as it is, without expression of the instructor's personal disagreement with the text.

The instructor, it is believed, should avoid offense to any social or professional group.

It was suggested that the physician be the executive officer, that he lay the plans and direct the course, that he personally give the primary instruction but that he utilize available persons in conducting the necessary drills.

The medical profession is asked to make first aid training available to the hundreds who will be required to take it and to the thousands who will desire it. Air raid wardens, school bus drivers and victory aides are examples of persons who already are required to take it.

The physician is best qualified of all persons in the community to direct the energies of the host of people who are insistent on giving their help. He need not fear that the entire burden will fall on his own shoulders.

As a corollary of this, the physician may be sure that many organizations, the membership of some of which is composed of women, are eager to support his efforts. As an introduction to utilization of these groups, the physician should urge participation of the Women's Auxiliary to the Minnesota State Medical Association.

Obviously, in the development of the entire program, the prompt support of officers of county and regional medical societies is essential.

(Signed) JOHN S. LUNDY, M.D.

Chairman of the Committee on First Aid and Red Cross of the Minnesota State Medical Association

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

Minnesota State Medical Association

George Earl, M.D., Chairman

CORRECTIVE SERVICE TO SELECTEES

Preliminary arrangements for rehabilitation of selectees were already under way in Minnesota as this issue went to press.

Selective Service regulations call for these corrective services to be given by home physicians and dentists of the selectee's own choice. But these physicians and dentists, with the exception of already qualified draft board examiners, must be accepted by the state director of the system before they may participate.

Medical examiners for local draft boards were sent their applications direct by the director of the system because officials in charge regard them as entitled to special consideration in view of their extensive unpaid service with the draft.

To facilitate application on the part of all other qualified practitioners, letters were sent to all members in March, urging them to secure their own application blanks from local draft boards. These blanks were to be filled out and returned as promptly as possible to the draft board to be forwarded to the director of the system in Saint Paul.

The regulations make it clear that this corrective service is not to be thrown wide open for any disability which the selectee may wish to have treated.

Fees will be paid by the Selective Service System for services previously authorized by the Selective Service authorities, only, and only to practitioners who have applied in the regular manner.

The procedure for authorizing treatment had not yet been announced as this issue went to press.

ALREADY AT WORK

Minnesota's committees on Procurement and Assignment of Physicians are already at work reporting on the qualifications and availability of Minnesota physicians for service with the armed forces.

So far, only names of men who expressed themselves on the first Procurement and Assignment questionnaire as willing to serve, have been checked. The main body of the work will come after the new questionnaire from the P and A, due early this month, comes out.

In preparation, lists of all physicians in every district in the state are being sent to committee members. These lists are on prepared blanks, filled out as to age and specialty of the physician. The county committee will then fill out the blank as to the availability for service of the physician, if not for military service, for other necessary public services such as the health service, industry or civilian practice in other communities stripped of physicians. The committee will make its decisions solely on the basis of community need. It is no part of their responsibility to pass upon claims for dependency.

Community Need Is Crux

If a community is already served by a sufficient number of physicians not qualified for combat service, even if it means a greater demand on their services, then the committee will mark the younger man in question as available for military duty. If a community can spare the services of an older man or a man obviously incapacitated for military service, the committee will mark him available for nonmilitary duty, that is, for medical practice in a community stripped of medical services, or in industry or in the public health service.

These lists of names went out to county committees before the first of April and are now being completed, according to local information, by the committees. They will be forwarded to the state committee and will be at hand for immediate reference as names are sent to Minnesota for checking from the Procurement and Assignment Service in Washington.

Begins With Physician

It is the hope and plan of all the combat agencies and the Procurement and Assignment Service that future military needs may be met under this system. The plan depends upon the willingness of physicians to serve wherever they can best serve, at home or in the armed forces, as expressed on the questionnaire which will reach them all within a short period. With the information on the questionnaire at hand and the supplementary advice of state and county committees, all physicians will be selected for the services which need them without stripping civilian communities or civilian needs. All physicians called in the draft will be referred to the Procurement and Assignment Service and will be permitted to apply for commission, if they are found to be available.

As emphasized repeatedly before, the Procurement and Assignment Service has no jurisdiction over members of the Reserve Corps.

Lapel Button

All who fill out and return their Procurement and Assignment questionnaires, however, will receive a signed certificate and a lapel button which will indicate that they have offered themselves for whatever service they can best give to the war. If they remain at home, under those circumstances, it is because impartial judges have decreed that they are needed at home—not because they have dodged their duty to their country.

TAX MEASURE OR SOCIAL PLANNING?

Which came first, "the chicken or the egg"?

American Hospital Association executives and "Blue Cross" directors posed the old question at a meeting in New York, recently, with reference to proposed increases in Social Security taxes. What prompted the new proposals? Was it the long-considered plan for extending social security to hospital service, or was it actually the need for new revenue to be derived by two billion dollars in payroll taxes which such an extension would provide?

If the proposal is actually another measure for revenue, then it should certainly be debated solely on grounds of its expediency as a tax-raising measure and rejected on those grounds. It is

obviously indefensible to raise war funds by measures which, once written into the law, cannot be repealed when the war is over without dislocating and endangering our whole Social Security system.

If the proposal is an honest piece of social legislation proposed as part of an expanding program of social planners in Washington, then it needs more study and debate than can be given it in a war crisis. It should wait until the crisis subsides and Congress can be reasonably certain of what lies ahead for Americans.

Would End "Blue Cross"

It is more than likely that the plan to provide \$3.00 daily for hospitalization out of Social Security funds—in exchange for doubling the current payroll tax—would eventually alter America's unique and efficient voluntary hospital system. It is certain that it would end the most extensive and promising privately promoted social experiment of these times, the "Blue Cross" hospital service system. This system now serves thousands of Americans well and it is being extended rapidly.

Difference Is Fundamental

Said Dr. S. S. Goldwater, head of the Associated Hospital Service in New York, at this meeting:

"I don't want to oppose something constructive that the Government wants to do; but I do want the Government to keep its hands off something constructive that we are doing. The motives of the President as expressed in his recommendations in January regarding increased benefits for contributors to the Social Security program are undoubtedly honorable and should not be opposed on that ground but rather on the ground that, in so far as we can see, they are being converted into bad methods. What the President says he wants to do is what we want to do. There is, however, a fundamental difference in method. . . .

"Local organization and control will produce the best results in hospitalization and any Federal approach to interference with the fiscal affairs of hospitals leading eventually to control by a central Government bureau would be a tragic affair for the people of this country. There is justification for the interest of a humane government in the question of whether hospital service has been made available on suitable terms to a great mass of the people; but this inquiry should also take into account the fact that voluntary, locally directed hospital service plans have made Government intervention unnecessary.

Local Failure Not Tragic

"Exaggerated statements have been made in Washington and elsewhere as to the lack of hospital care. There may be some communities where adequate hospital facilities are lacking or where good hospital service is difficult to obtain. But these are very few in this country. . . .

"Assumptions that we must do as other countries have done regardless of our achievements are certainly not justified, especially in a country where freedom is valued and where the principle of local self-government is supposed to be sacred. . . .

"Moreover failure in a locality, if it occurs, is not the tragic thing that country-wide failure would be. Hospitals must be left free to take such action as their communities require without having to wait for approval from Washington based upon imperfect knowledge of local conditions.

"My own experience in New York showed me how far short Government hospitals can fall from the perfection which has been attributed to them. Perfect conditions do not exist anywhere and even in New York, where I worked as head of the city's hospitals—and I worked under conditions as favorable as can be expected of government—the story has not yet been told of impediments placed by government circumlocution in the way of anybody attempting to administer a large group of hospitals from a central office. The system as a whole failed to accomplish what I had in mind for the city because of the onerous conditions under which government work of all sorts had to be done. It could hardly be otherwise if the Federal government attempted to exercise any measure of control over voluntary hospitals, as it inevitably would do sooner or later under plans proposed by the Social Security board.

Can Fit All Needs

"The fact is that we have in the voluntary non-profit hospital field a positive plan for the pre-payment of hospital bills by the public which has, in a few short years, demonstrated its capacity to serve and the eagerness of the public to take advantage of it. If the government will keep its hands off we will be able to develop plans hereafter that will fit the needs of all groups in the population, down to those of the lowest incomes, with local supervision and control and with local responsibility. We are asking the Government to stand by and give us its blessing to encourage us in the work we are seeking to do rather than to hamper us by ill advised interference, however well meaning, which offers a serious threat to the voluntary hospitals system and to free medicine. . . ."

The March issue of *Hospital Management* reports a total of seventy-one approved "Blue Cross" hospital service plans in the United States, representing twenty-nine states and two provinces.

THE COUNCIL MEETS

Defense

Health aspects of Civilian Defense have not yet been worked out in detail, Dr. A. J. Chesley, secretary of the State Board of Health, reported to the Council at the February meeting. It was decided, however, that members of the Council would act as advisers in these matters in their districts. They will meet with chairmen of city and county Defense Councils and with local health officers to develop and coördinate local plans.

Dues

The question of refunding dues of members in active military duty was thoroughly discussed at the request of one large society at this meeting. All Council members felt that the work of medical organizations at home is too important to permit such refunds.

It was pointed out that a large number of societies are now assessing their own members to cover local and state dues of colleagues who go into service. Furthermore, the House of Delegates ruled in 1940 that only officers under the grade of captain who are in need of assistance should be excused from paying dues—and then only with approval of the Council.

Fifty Years

A new honorary organization, the "Fifty Club," was established by the Council at this meeting. It will be made up of members who have practiced medicine for fifty years or more. All will receive a lapel button engraved with the name of the association and the numeral fifty at the first presentation ceremony to be held in connection with the 89th annual meeting in Duluth. The presentation will be a regular feature of the meeting each year, thereafter, and special invitations will be issued to all who are able to attend. Those who are not able to attend will receive their awards at home.

Preliminary counts showed a considerable number of physicians, some of them still in active practice, who are eligible for "Fifty" awards in Minnesota.

Insurance Studies

Two sub-committees of the Committee on Sickness Insurance will study sickness insurance

plans all over the country this year with a view to the possibility of drawing up a workable plan for Minnesota, it was decided at this meeting. One of these committees will investigate enabling acts passed in other states, an essential first step to any non-profit insurance plan. The other will review actual provisions of existing medical service plans with a view to sifting them for Minnesota requirements. A report on both studies will be submitted to the House of Delegates in June.

County Added

Beltrami county was selected, with the approval of the Council, for a third experiment in medical service for Farm Security clients in Minnesota. The first two, in Morrison and Ottertail counties, are now five months old and preliminary reports from the FSA and the physicians involved are not unfavorable. Both admit, however, that insufficient time has elapsed as yet to judge of the ultimate success in either locality. Dr. Richard F. Boyd of Milwaukee, regional medical director of the FSA, presented the matter to the Council and expressed the appreciation of the government for the coöperation of physicians in both counties.

Nurses' Training

A joint committee of nine, representing the medical and hospital associations and the State Board of Nurses Examiners, will study problems of nurses training as they effect especially the rural hospital. The plan, drawn up by the Committee on Interprofessional Relations, was approved by the Council at this meeting. The new committee will act as a liaison body before which all the interests concerned, including the public, the hospital, physicians and nurses, will be aired and thoroughly discussed. Training regulations which will protect nursing standards and still not deprive smaller hospitals of well-trained nurses will be the objective of the committee. Drs. F. J. Savage, Saint Paul, C. M. Johnson, Dawson, and P. F. Meyer, Faribault, were appointed medical representatives to this committee.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Julian F. Du Bois, M.D., Secretary

St. Paul Abortinist Loses Appeal in Supreme Court

Re: State of Minnesota vs. Georgiann Tennyson, also known as Ann Tennyson.

On March 6, 1942, Mrs. Georgiann Tennyson, fifty-three years of age, lost her appeal from a conviction for criminal abortion, in the Supreme Court of Minnesota. The decision of the Supreme Court was unanimous. Mrs. Tennyson, who resided at 1719 Ross St., Saint Paul, was convicted by a jury in the District Court of Ramsey County, on May 23, 1941, and was sentenced by the Honorable Hugo O. Hanft, Judge of the District Court, to a term of not less than two and not more than eight years at hard labor in the Woman's Reformatory at Shakopee. Mrs. Tennyson's sentence was doubled due to the fact that in 1928, she had a previous conviction for criminal abortion. At that time, she was known as Ann Herbert. Mrs. Tennyson was taken to Shakopee on March 6, 1942, to commence serving her sentence.

In the present case the Supreme Court of Minnesota made a very careful review of the laws of this State concerning the crime of abortion and previous decisions of the Supreme Court. The opinion written by the Honorable Harry H. Peterson, Associate Justice of the Supreme Court, held that there was no merit in Mrs. Tennyson's contention that the girl upon whom the abortion was performed was an accomplice and, therefore, Mrs. Tennyson could not be convicted unless the girl's testimony was corroborated. The Supreme Court of Minnesota definitely stated that

"A woman upon whom an abortion is performed or attempted is not an accomplice in the commission of the offense."

The Supreme Court also held that it was not prejudicial for the trial court to have permitted a physician to testify on behalf of the State

"that the administration of the jelly substance in question to produce an abortion was dangerous to the life of the woman. We cannot perceive that any possible prejudice could have resulted. It is impossible to believe that any juror of ordinary intelligence would not know, without being told so by a doctor, that an attempt to produce an abortion by the administration of any medicine or substance or the insertion of an instrument into the uterus would be dangerous."

Mrs. Tennyson is an old offender in the abortion racket and deserves little consideration. There is no excuse whatever for Mrs. Tennyson's having been engaged in such illegal activities. Her husband has been employed for some time by the City of Saint Paul as a fireman. The Supreme Court's decision culminates a long fight waged by the Saint Paul Police Department, the State Board of Medical Examiners and the Ramsey County Attorney's office to put Mrs. Tennyson out of circulation. The case was diligently prosecuted by Mr. James F. Lynch, County Attorney of Ramsey County, and is another example of the splendid coöperation given by Mr. Lynch's office in the prosecution of those who violate the medical laws of the State of Minnesota.

Duluth Woman Sentenced to Four-Year Term for Abortion

Re: State of Minnesota vs. Millie Meyer.

On February 11, 1942, Millie Meyer, forty-nine years of age, was sentenced to a term of not to exceed four years at hard labor in the Women's Reformatory at Shakopee, Minnesota. The sentence was imposed by

the Honorable C. R. Magney, Judge of the District Court, following the defendant's conviction by a jury of the crime of abortion.

Mrs. Meyer, who resided at 108 No. 58th Ave. West, Duluth, was arrested on January 15, 1942, by members of the Duluth Police Department, when it was learned that a twenty-five-year-old Duluth girl had an appointment with Mrs. Meyer for the purpose of having an abortion performed. On January 16, R. E. Donaldson, Chief of Detectives of the Duluth Police Department, filed a complaint against Mrs. Meyer charging her with the crime of abortion. Mrs. Meyer demanded a preliminary hearing which was had on January 22, 1942,

in the Municipal Court of Duluth. Following the hearing, she was held to the District Court for trial. The trial commenced on February 3, and ended on February 5, with the jury deliberating only two hours and returning a verdict of guilty.

This conviction marks the third successful prosecution, during the past year against abortionists in Duluth. It demonstrates the splendid work being done by the Duluth Police Department under Chief Elmer Stovern and Chief of Detectives R. E. Donaldson, and the County Attorney's office of St. Louis County. The case was tried for the State by Mr. Walter F. Dacey, assistant to Mr. Thomas J. Naylor, County Attorney.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Physicians Licensed February 13, 1942

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Ralph Sharples Armstrong, U. of Minn., M.B. 1940, University Hospital, Oklahoma City, Okla.
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John Patrick Kelly, U. of Minn., M.B. 1941, St. Mary's Hospital, Duluth, Minn.
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Miriam Hinsdale Mellon, U. of Rochester, M.D. 1939, 6055 Bunkerhill Road, Pittsburgh, Pa.

Alvin Aurelius Merendino, Yale Univ., M.D. 1940, University Hospital, Minneapolis, Minn.
Thomas Walker O'Kane, U. of Ill., M.D. 1941, Midway Hospital, Saint Paul, Minn.
Albert John Ochsner, II, Med. Co. of Va., M.D. 1940, Mayo Clinic, Rochester, Minn.
Donald Joseph Pearson, Ohio State U., M.D. 1940, Mayo Clinic, Rochester, Minn.
Kenneth Adolph Peterson, U. of Minn., M.B. 1941, Minneapolis General Hospital, Minneapolis, Minn.
Paul George Polski, U. of Minn., M.B. 1940; M.D. 1941, Kings County Hospital, Brooklyn, N. Y.
Robert Thomas Rowland, U. of Minn., M.B. 1941, Ancker Hospital, Saint Paul, Minn.
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Fred Newman Sparling, U. of Manitoba, M.D. 1940, Mayo Clinic, Rochester, Minn.
Edward Francis Walsh, U. of Minn., M.B. 1941, Ancker Hospital, Saint Paul, Minn.
William E. Wellman, U. of Minn., M.B. 1940; M.D. 1941, Lake City, Minn.
Samuel Maudin Wells, Harvard U., M.D. 1940, University Hospital, Minneapolis, Minn.
George Theodore Wilson, U. of Minn., M.B. 1941, 1900 Delaware Ave., Saint Paul, Minn.
Kenneth George Wilson, U. of Minn., M.B. 1940; M.D. 1941, Mayo Clinic, Rochester, Minn.

By Reciprocity

Arthur Cullen Burt, U. of Chicago, M.D. 1935, 1201 14th Ave. N., Fargo, N. D.
S. Sverre Houkom, U. of Minn., M.B. 1932; M.D. 1934, Duluth Clinic, Duluth, Minn.
Charles Michael Jessico, Loyola U., M.D. 1936, Duluth Clinic, Duluth, Minn.
Gordon Mather Martin, U. of Neb., M.D. 1940, Mayo Clinic, Rochester, Minn.
Edward Stewart Taylor, U. of Iowa, M.D. 1936, Worthington Clinic, Worthington, Minn.

National Board Credentials

John Hyslop Flinn, Northwestern U., M.B. 1940; M.D. 1941, Mayo Clinic, Rochester, Minn.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

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CONSERVATION OF MAN POWER

Every industry in this state, whether concerned entirely with defense work, or completely of a private nature, has, since "Jap Sunday," increased its tempo to a tremendous pitch. This increase has imposed a great strain on all the components of production, including the machines of flesh, as well as the machines of steel.

Mechanical engineers, plant managers, and machinists can glibly quote the stress, strain, hours of production, etc., each machine of steel is capable of withstanding in producing its maximum efficient output. How meager, in comparison, are the facts in regard to the machines of flesh which are the most important cogs in our "all-out" war of production.

Out of World War I medical men in all fields from Psychiatry to Roentgenology, and Surgery to Dermatology, gleaned valuable statistics and information which aided the progress of Medicine immeasurably. In World War II, when for every man on the battlefield, it has been variously estimated twelve to sixteen men are necessary in industry, the opportunities for Industrial Physicians, and Surgeons, to correlate all facts of fatigue, efficiency, and nutrition, as well as the effects of rest periods, general health measures, and planned feedings on the human machine, should be collected and utilized to the fullest extent.

Medical Profession Responsible

The conservation of man power resolves itself around the education of Industrial Physicians and Surgeons, as well as all Physicians in any way connected with the health and welfare of workers, education of plant owners and operators, and health education of the great masses of workers. The responsibility for this tremendous task rests squarely on the shoulders of the medical profession as a whole, but more surely so on the increasing corps of Industrial Physicians and Surgeons.

To quote from a recent editorial in the *Journal of American Medical Association*, "Neither employes nor physicians yet fully comprehend how vast a contribution could be made to the war effort by a well-organized health program. A reduction of only ten per cent in the four hundred million man days now lost annually due to illness and injury would produce, if applied to these va-

rious tasks, five capital ships, sixteen thousand tanks or nine thousand bombers.

Worker Most Valuable Machine

With the challenge clear what can we as Physicians do to conserve this vital factor in Victory, Man Power? First, I believe an organized, as well as individual, effort should be made to bring to the attention of the Manufacturers, the necessity of recognizing the fact that their most valuable production unit is the individual worker and not the steel machines. Acquaint them with the facts available in regard to the maintenance of the general health and efficiency of their employes. Warn them against the exploitation of health and efficiency by too much "over time" and constant days of work, with no periods of rest or relaxation. The experience of British Industry, that more than fifty-six to sixty hours per week of work for men, and forty-eight hours of work per week for women leads to increased illness, absenteeism and increasing accidents should be quoted in support of these contentions. Secondly, the workers themselves should be acquainted with measures of health promotion and sickness prevention by various educational means. No one method will reach all workers so poster campaigns, personal interviews, group health conferences and classes, motion pictures, payroll inserts, etc., should all be utilized. Repetition in all forms is necessary to keep impressing the worker of his duty in maintaining his health and efficiency, to contribute his best at all times, but particularly now, in this war for Victory. Stress keeping fit, rather than medical treatments and diseases and always employ the simplest of lay terminology. The Bureau of Health Education of the American Medical Association has many pamphlets available that can be readily obtained to assist in this form of education.

Lastly the medical profession as a whole must keep abreast with the many phases of Industrial Health as applied to the maintenance of the health and efficiency of all workers whether treated individually, as private patients, or in groups. Answers to any specific questions can always be obtained through your Minnesota State Medical Industrial Health Committee which is only too eager to assist physicians in maintaining their part of this tremendous responsibility.

EUGENE E. SCOTT, M.D.

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, February 11, 1942. Dinner was served at 7 o'clock and the meeting was called to order at 8:10 p.m. by the president, Dr. Martin Nordland.

There were forty-nine members and one guest present. Minutes of the January meeting were read and approved.

The Secretary read a letter from Dr. J. F. Corbett expressing his appreciation of the Academy's action in having Dr. Corbett's name transferred to the Honorary Membership list.

The scientific program followed.

Dr. Walter E. Camp gave the following paper with two case reports, illustrated by numerous lantern slides.

MALIGNANT EXOPHTHALMOS FOLLOWING THYROIDECTOMY IN GRAVES' DISEASE

BY WALTER E. CAMP, M.D.
Minneapolis, Minnesota

Exophthalmos, or proptosis of the eyeball, is only one of a number of disturbances which affect the eye and orbital contents in Graves' disease, or thyrotoxicosis. Plummer and Wilder in 1934, reporting on 2000 cases of exophthalmic goiter, found exophthalmos present in 55 per cent. Other investigators have reported exophthalmos to be present in from 35 to 75 per cent. Plummer and Wilder also showed that previous to thyroidectomy there was a positive correlation between the exophthalmos and the basal metabolic rate, and also that the incidence of exophthalmos in exophthalmic goiter has decreased in later years.

Before discussing the pathogenesis of exophthalmos associated with hyperthyroidism, and discussing rather briefly the relationship between the two, I want to report two cases of malignant exophthalmos which developed following thyroidectomy and in which all other signs of thyrotoxicosis have disappeared.

Case 1.—The first patient, whom I saw with Dr. Regnier, was a farmer thirty-one years old, who entered the hospital January 19, 1940. His symptoms were those typical of hyperthyroidism: namely, tachycardia, tremor, nervousness, loss in weight, dyspnea on exertion, and moderate exophthalmos with occasional diplopia. These symptoms had all developed about one year before admission. Examination showed a typical "thyroid stare," moderate exophthalmos with positive Stellwag and Graefe signs. Pulse rate was 90. The thyroid was moderately enlarged and there was a gross tremor of the hands. Basal metabolic rate was plus 43 per cent. Thyroidectomy was done January 22, 1940, which consisted of a subtotal lobectomy with complete removal of the isthmus and pyramidal lobe. Postoperative recovery was rapid and uneventful.

He had no further complaints until July, 1940, six months following the operation, when the exophthalmos became progressively worse. The conjunctiva of both eyes became chemotic and he was unable to close the

lids completely. The left eye was slightly more proptosed than the right and developed three small ulcers on the lower half of the cornea in the exposed area that could not be completely covered by the eyelids. Exophthalmometer readings made at this time were 26 for the right eye and 28 for the left. His basal metabolic rate was minus 10 per cent and all other signs of hyperthyroidism had disappeared. He was hospitalized, given atropine ointment, and a moist chamber dressing to further protect the left eye. X-ray therapy to the pituitary was begun and continued until he had had 950 Roentgens on each side. In ten days the ulcers had healed completely and on September 24, 1940, the exophthalmometer readings were 23 for the right eye and 24 for the left eye. To date, about a year and a half later, he has had no further trouble.

Case 2.—The second case presented a more difficult problem to handle, and had, as you will see, a much more malignant course. I am indebted to Dr. Nordland for the privilege of seeing this case and for his rather complete history and summary of her findings. She was a single woman, thirty-four years of age. Her history of hyperthyroidism dated back about three years and consisted of nervousness, fatigue, tachycardia, loss in weight, and exophthalmos. The thyroid was uniformly enlarged and firm on palpation. The exophthalmos was mild in degree, but was not measured by exophthalmometer at this time. The basal metabolic rate was plus 33 per cent; pulse rate 108. After rest in bed and Lugol's solution, the basal rate was plus 23 per cent. On July 2, 1940, a subtotal lobectomy of the thyroid was done. Recovery was rapid, with disappearance of all symptoms except the exophthalmos. The basal rate three months following the operation was minus 10 per cent; and six months after operation was minus 1 per cent. At this time, namely six months following the operation, the exophthalmos had rather markedly increased. She was seen at this time by Dr. Frank Burch, who found diplopia and marked weakness of convergence. The exophthalmometer readings taken by him were 26 for the right eye and 22 for the left eye. The patient now was absent from observation for about three months. At this time she was seen by Dr. Edward Burch, who found the proptosis of the right eye had increased from 26 to 29, and an ulcerative keratitis was developing in the right eye. She was given a protective glass and advised by Dr. Burch to have an orbital decompression to preserve vision. The left eye had remained at a reading of 22, which was the same as three months previously.

The exophthalmos of the right eye gradually increased during the next month, but the excoriated cornea showed little change. She was hospitalized, and given large doses of Lugol's solution and thyroid extract. X-ray therapy to the pituitary area on each side was given in doses up to 480 Roentgens. The right eye was protected by a moist chamber. The proptosis remained about the same, and the patient at this time was seen by Drs. Benedict and Adson, who advised that an orbital decompression operation would probably not save the right eye. The corneal ulceration had rapidly progressed to necrosis and perforation. Enucleation of the right eye was done May 1, 1941. Immediately following the enucleation of the right eye, the exophthalmos of the left eye began to progress and on May 5, 1941, four days following enucleation, the exophthalmometer readings increased from 22 to 25. A moist chamber was used to protect the left eye and more x-ray therapy was given to the left orbit and both pituitary areas. A small ulcer developed on the lower half of the left cornea, but fortunately the ulcer healed and the proptosis gradually receded to a point where now the patient uses only protective glasses.

The conjunctiva and orbital tissues of the right orbit are still slightly prolapsed, nine months following enucleation.

This interesting case caused all of us who saw her considerable concern and worry, as at one time it looked as though she would lose her second and only eye.

The pathologic history of malignant exophthalmos is fairly well understood and has been partially demonstrated, at least in the microphotographs of eyes that have been removed. The pathogenesis of its development, however, has still not been satisfactorily explained. It has been shown that malignant hyperthyroidism can exist without exophthalmos and that malignant exophthalmos can exist without any symptoms of hyperthyroidism or thyrotoxicosis.

Both clinical and experimental evidence has proved conclusively that the thyroid enlargement, the thyroid epithelial hyperplasia, and the exophthalmos are due to hormones secreted or controlled by the anterior pituitary, or hypothalamos, or both.

It is interesting to follow through the literature for the past ten years and find "hints," deductions, or statements which gradually lead up to the present-day concepts of Hertz, Means, Williams, Collip, and of Heyl and Billingsley, that there are at least two and possibly three thyrotropic hormones, and that one or possibly two are responsible for the thyroid disturbance, and still another is responsible for the orbital trouble, namely, exophthalmos, diplopia, paresis of accommodation, Möbius, Dalrymple, Stellwag, and Von Graefe signs.

Hertz, Means, and Williams, of the Massachusetts General Hospital have elected to classify Graves' disease as an endocrine imbalance, and to subdivide it into (1) the classical type, in which exophthalmos is absent, or, if present, is well controlled by therapy or thyroidectomy; (2) the special ophthalmic type in which thyrotoxicosis is not manifest or has subsided following therapy or thyroidectomy, and the ophthalmopathy has become aggravated. They argue that there is a definite balance between the thyroid stimulating hormone (T.S.H.) or thyrotropin and the thyroid hormone or thyroxin. An excess of thyroid hormone supplied to the tissues produces hyperthyroidism. This excess of thyroxin in the tissues is due to an over-activity of the anterior pituitary or to an imbalance of the hypothalamos and the pituitary. The thyroid hormone promotes diuresis, while the T.S.H. promotes water storage, and would be effective in producing exophthalmos by local water storage within the orbit. Hertz, Means and Williams have shown that in the special ophthalmic type there is a higher output of T.S.H. in the urine than in the classical Graves' disease or in normal persons. They believe that thyroidectomy, after full iodination, is the best treatment for the classical type of Graves' disease, but that in the special ophthalmic type, thyroidectomy is not indicated and may even aggravate the ophthalmopathy.

Discussion

DR. H. B. ZIMMERMANN, Saint Paul: I have had a very interesting case recently which illustrates pretty much what Dr. Camp said about the association of two

types of symptoms. This young man developed unilateral exophthalmos associated with quite a high fever and systemic evidence of infection. It looked to be pretty obviously an inflammatory thing in the orbit. An incision was made behind the orbit and pus evacuated. The condition at that time was assumed to be an ethmoiditis. The wound drained profusely, the systemic symptoms of infection cleared up, there was some recession of the proptosis, but the vision in the eye was lost. A month or two later the patient developed definite symptoms of exophthalmic goiter. Up to this time it was a unilateral exophthalmos probably due to retrobulbar abscess. Now, as he began to lose weight, it seemed to be a case of Graves' disease. I was asked to do a thyroidectomy. I somehow had a hunch that something was going to be wrong and I advised the man I would do the operation but not to expect too much. I did the thyroidectomy. His toxic symptoms disappeared and I immediately had him put under Dr. Burch's observation. As predicted, the exophthalmos in the good eye continued until Dr. Burch became alarmed about this eye. Wallace Ritchie did a decompression from above and recently I think he has been much better, though I have not seen him since.

DR. E. A. REGNIER, Minneapolis: From Dr. Camp's report, I think both of these cases demonstrate several factors at work in exophthalmic goiter. Both patients had moderately high basal metabolic rates before being put under treatment. Subsequently, they had clinical cures with metabolic rates of minus 10 per cent. Operation did away with the toxic symptoms and still the exophthalmos continued.

A patient I saw a few years ago, a young woman, had been very ill, with a temperature of 105° to 106°, with what looked like acute follicular tonsillitis. After the fever subsided, she remained very ill and her pulse ran about 140, and basal metabolic rate was over 60. She was put on iodine treatment and developed bilateral exophthalmos. In about two weeks' time she was in condition to warrant thyroidectomy. After operation the exophthalmos receded in one eye and in the other eye it seemed to progress. She was given iodine in small doses for about eight weeks and then the exophthalmos receded in one eye entirely, which left her somewhat disfigured. One eye was prominent and much larger than normal. Whether or not the iodine had anything to do with inhibiting the exophthalmos is problematical and the unilateral exophthalmos became stabilized with no corneal complications. These three cases, demonstrate endocrine factors outside of the thyroid, probably in the anterior pituitary, which remain over-active for some time following removal of the toxic thyroid.

I would like to ask Dr. Burch what he has to offer us in the way of palliation in these cases short of orbital decompression?

DR. F. E. BURCH, Saint Paul: I have been unfortunate enough to see a number of cases similar to those so well presented by Dr. Camp, and including his case. Four eyes have been lost. The first one was seen in 1928 and has been fully reported in the November, 1929, MINNESOTA MEDICINE. Progressive exophthalmos began in one eye eighteen months after a subtotal thyroidectomy and was at first diagnosed as a pseudotumor of the orbit. A Kronlein exploration was done elsewhere. The biopsy revealed nothing but edematous fat. Eventually both eyes were lost.

There are several difficult things about these post-operative malignant exophthalmos cases. They come to the ophthalmologists complaining of epiphora, frequently of diplopia, some followed by intense conjunctival chemosis, the diplopia frequently preceding the intense proptosis. The outstanding thing one finds on exploration or after exenteration is the enormous increase in size of the extraocular muscle, sometimes as

large as lead pencils. In the case mentioned, reported by me, there was an intense hypertrophic degenerative myositis of all the extraocular muscles, an increase in the orbital content of about 40 per cent, mostly due to edema. I do not know how to explain the enormous hypertrophy of all the muscles or just why diplopia developed so early and before marked proptosis. It is possible that this may be due to a pressure paralysis of the nerves supplying the extraocular muscles.

In Schmeltzer's work exophthalmos could be experimentally produced in animals in from ten to twenty days after injection of beef anterior pituitary lobe. He found that when the ganglion was removed on one side the animals developed binocular exophthalmos equally. That there is a thyrotrophic hormone factor with which the anterior pituitary lobe is directly concerned seems most plausible.

All but one of the seven malignant cases I have have had low, normal or subnormal basal metabolism. One case with progressive exophthalmos died without thyroid operation. None of these cases had any of the usually classical signs of hyperthyroidism at the time of the progressive exophthalmos. They did not have tachycardia nor were they particularly nervous. The Von Graefe, Stellwag and Moebius signs were absent in many cases later.

Treatment is difficult. They progress in spite of any attempt to suture the lids, do a canthotomy, incise the orbicularis or remove orbital fat. The cornea begins to break down, apparently on a purely trophic basis without any actual infection.

Three cases seen by me improved under thyroid therapy or Lugol's solution, in one case under administration of both thyroid extract and iodine.

I was fortunate enough to see one patient whose exophthalmos had been treated by decompression of the frontal and ethmoid. It seemed to me a less mutilating result than the one patient I have seen after a Naffziger decompression. At present I have a case under observation undergoing x-ray treatment of the pituitary, which probably also included the orbits. This has resulted in a reduction from 25 and 26 mm. down to 22 and 23 mm. in exophthalmometer measurements and the patient has had a very great relief from symptoms, especially headaches.

The non-operative treatment of these cases, in my opinion, is x-ray therapy of the pituitary (which probably also includes the orbits). The operative treatment for extreme cases should be a decompression of the frontal and ethmoids, or perhaps a Naffziger operation. The ophthalmologist is "on the spot" to know just how to handle each problem and certainly needs the help of the internist, radiologist, rhinologist and neurosurgeon.

DR. WILLIAM T. PEYTON, University of Minnesota (by invitation): If this is entirely a matter of hormones, it is remarkable that only one eye should become exophthalmic or at least that one eye should become more involved than the other. It is, however, not beyond the realm of possibility. Sometimes we see in girls at puberty one breast developing before the other.

I saw this second case described by Dr. Camp, at the time she had ulceration in the cornea of the second eye. I admit that I urged the patient to have orbital decompression; but in view of the end result, it would seem that she was right in refusing to have it done. The question is: should these patients have decompression or should they be given x-ray therapy? I have never done a decompression. It has been the policy at the University Hospitals to treat progressive exophthalmos with x-ray, and we have not found it necessary to perform operation later. However, the operation is neither difficult nor mutilating. It consists of an incision entirely within the hairline, raising up the

frontal lobe, removing the roof of the orbit and opening the capsule.

After Dr. Nordland invited me to come here this evening, I went down to the x-ray department and looked up the cases we have treated. Nine cases were treated. Two had lost one eye before treatment. Since treatment, one was followed three years without progression of the exophthalmos, five were followed one year without progression, one was followed a few months and found to have regression. Two were not followed.

Of course, we realize that a follow-up of only one year is not sufficient and that these people must be followed longer before definite statements can be given as to whether or not this treatment is effective. So far, however, no eyes have been lost after treatments were given. Our present attitude is that x-ray therapy seems to be adequate treatment but it is still not a settled question.

DR. REGNIER: Do you consider that x-ray therapy affects the pituitary itself or does radiation of the retrobulbar tissues inhibit the progressive exophthalmos by removing the edema and cellular infiltration in the retrobulbar space?

DR. PEYTON: We admit we cannot irradiate the pituitary alone without irradiating the orbit also. The answer to your question, therefore, is that we don't know.

DR. MARTIN NORDLAND, Minneapolis: These case reports presented so well by Dr. Camp are most interesting and represent one of the most difficult problems related to exophthalmic goiter.

The cause of progressive exophthalmos following operations for toxic goiter has not been fully explained. Various theories, as well as carefully conducted studies along this line, have been reported, but as yet no satisfactory reasons have been established. Classification of recurrent hyperthyroidism can readily be made on the basis of whether the previous removal of the gland was adequate or inadequate, and of course the proper treatment in the latter type of case is prophylaxis. This consists in a thorough removal of the gland, including the isthmus and also the pyramidal lobe if present, leaving only a thin layer on the posterior capsule and taking care to locate and resect any retrotracheal extensions. This procedure will prevent most, but not all, recurrences, and it is in this latter type that one cannot attribute progressive exophthalmos to inadequate or incomplete surgery.

In only a few cases a partial return of some of the signs of hyperthyroidism is present and it is in these cases especially that therapeutic measures fail. In a certain group of cases, exophthalmos, frequently hardly noticeable pre-operatively, becomes more and more progressive following removal of the gland, so that permanent damage seems a likely factor in the production of these changes. The pathologic change responsible for this condition, as described by Naffziger and Jones, is of mechanical origin, and is the result of pronounced swelling of the extraocular muscles to from three to eight times their normal size. They recommend for these cases of progressive exophthalmos following thyroidectomy, decompression by removal of the roofs of the orbit through bilateral frontal bone flap.

As Dr. Camp has pointed out, this procedure was not applicable in these cases.

Dr. A. E. Cardle of Minneapolis then read his Inaugural Thesis on "The Pituitary Gland and Diabetes Mellitus." Lantern slides were shown.

THE IMPORTANCE OF THE PITUITARY GLAND IN DIABETES MELLITUS

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The brilliant work in 1890 by Von Mehring and Minowski, in which they discovered that the complete removal of the pancreas in dog is followed by symptoms which closely resembled human diabetes mellitus, paved the way for one of the greatest discoveries of mankind. This work and the deductions which have come as a result are well known to you all. Years of research finally culminated in the preparation by Banting and Best in 1921 of an active and serviceable pancreatic extract, by the use of which they were not only successful in controlling symptoms in depancreatized animals but in human diabetes mellitus as well.

The isolation of the active principle of insulin as a crystalline entity by Abel and his co-workers in 1926 gave the exact chemical composition and structure of insulin, and finally the discovery by Hagedorn in 1925 of the protamine combination added still another important step in the control of altered carbohydrate metabolism. With the discovery of insulin new interest at once arose in the disease, for now we had a definite therapeutic agent with which to attack the disease and one which gave results. It is still our strongest weapon.

Diabetes is a disturbance of carbohydrate metabolism, and at first it appeared that insulin was the answer to this disturbance. The physiologists, however, are giving us a new viewpoint, and diabetes is no longer regarded wholly as a lack of pancreatic activity but is a disease due to disturbance of endocrine regulation. It would indeed be strange if nature had concentrated the control of such a vital function in one organ. It is more logical to believe that sugar disposal is more carefully safeguarded by multiple mechanisms. This has opened an entirely new field of research of great importance.

Experiments in this field are showing that not only the pancreas, but also the pituitary, the thyroid, adrenal, and even at times the ovaries and testes influence carbohydrate metabolism. A new conception and a broader outlook in the treatment of diabetes mellitus is slowly approaching. Clinically we are recognizing more and more that certain cases of diabetes differ in some respects from the usual type of case. During the past fifteen years I have been working with a large group of diabetics at the Minneapolis General Hospital and it is not an uncommon experience to find patients, under good management, which fail to respond to well established methods of treatment. To explain the cause for this "difficulty in regulation" is not easy, and I am certain that you who treat diabetes have at times been confronted with the same problem. I am sure that in some of these cases this glandular relationship may play a part. To say that it may play a part is one thing but to explain the actual mechanism is another thing.

I wish tonight to discuss one phase of this glandular relationship—i.e., the importance of the pituitary. Of

all the endocrine glands involved in carbohydrate metabolism, and presumably in diabetes mellitus, the most important, exclusive of the pancreas, is the anterior lobe of the pituitary.

To do this I am going to give briefly the results of investigations in this field. This work is chiefly with animals, and as with every new branch of investigation the results are sometimes confusing. However, I believe that certain conclusions are definite, inasmuch as the investigations have been repeated with similar results. From these, certain applications can be made to human diabetes, which help not only in explaining some features of the disease, but may be of great usefulness in treatment.

Experimental Evidence Showing the Importance of the Pituitary Gland

The frequent occurrence of glycosuria in acromegaly and pituitary tumors focussed the attention of investigators upon the relationship of the pituitary to the pancreas, but it remained for Houssay and Magenta in 1925 to first confirm the relationship. They found "that the diabetic symptoms which could be produced in dogs by pancreatectomy were considerably ameliorated by removing the pituitary gland; performed either before or after the removal of the pancreas." In other words, no diabetes, or only a very mild one, will develop where the pituitary has been removed. This work was a remarkable discovery. Since that time these findings have been frequently confirmed, not only in dogs and toads, but also by Long and Lukens in cats. These animals can live in fairly good health for as long as six months without insulin, and as such serve as very sensitive test objects.

Further, studies by Evans has shown that injections of an extract of the anterior pituitary into well-nourished dogs, cats, and rabbits leads to hyperglycemia, glycosuria, polyuria, and ketonuria in from three to seven days. Following injection of the extract into animals there is a gradual fall of insulin content of the pancreas to very low levels, and symptoms of diabetes persist one to three days after cessation of the injection. At its height the condition may simulate in severity that produced by partial pancreatectomy. This pancreas, if examined, will show degranulation and hydropic degeneration of the beta cells of the islets of Langerhans. Degeneration of this kind was common in islets of dogs which were undergoing treatment with the extracts and may be brought about by the strain of sudden induction of the diabetic condition.

Upon cessation of the injections, if the degenerative condition has not been present for too long a period, the insulin content may return to normal. However, if the amount of extract is increased (25 grams of fresh gland daily), the reaction in the pancreas is no longer reversible, and the point is reached where the degeneration in the islets becomes irreversible, so that the diabetes continues indefinitely. We therefor see the following effects produced by the injections of anterior pituitary extract: (1) temporary diabetes—a state produced by a small number of injections with recovery possible when the injections are stopped; and, (2) permanent diabetes—a state produced by more severe

injections from which the pancreas will not recover.

Ham and Haist have reviewed the histology of the pancreas of dogs in various stages of anterior-pituitary induced diabetes: those in temporary diabetes, those recovered from temporary diabetes, and those in permanent condition. They found that "daily injections of this extract led to a progressive degranulation of the beta cells of the islets of Langerhans, and beginning hydropic degeneration, which was almost complete after seven daily injections. If allowed to recover the beta cells recovered about one-half of their granules three days after the last injection. Mitotic figures were also observed in these cases. However, in those dogs in which permanent diabetes developed, granular beta cells became very scarce and there was replacement of the islets by hyaline material." It was interesting to note, at this point, that this latter change may be reflected in certain human beings. Hyaline degeneration of the islets has been noted in about 50 per cent of the persons dying of diabetes. This varies in amounts. Arey, of the University of Minnesota, has noted that it gives the staining reactions of amyloid. However, I have discussed this point personally with Dr. Arey and he states the lesion is not specific for diabetes, nor is there any relation between the clinical severity of the disease and the extent of hyaline replacement of the islets.

These are the experiments that justify the belief that diabetes may not be due only to a lack of insulin by a disordered pancreas per se, but that the production of insulin may be deficient due to the activity of the anterior pituitary gland.

Analysis has shown that the extract of the anterior pituitary contains two important factors: (1) a pancreatropic factor which stimulates the formation of pancreatic islands and increases the amount of insulin; (2) a diabetogenic factor which consists of two parts, glycuric and ketogenic. This latter diabetogenic factor has also been given by other authors the name of contra-insular hormone, and is the hyperglycemizing substance which stimulates decomposition of glycogen in the liver. In passing, however, one must note that the extract does not exert a similar action on the guinea pig, mouse, or rat. In these animals treatment with anterior pituitary extracts can increase both the amount of islet tissue and the amount of insulin found in the pancreas. This is likely due to a preponderance of the pancreatropic effect of pituitary extract, and is, undoubtedly, compensatory and precedes the condition which occurs in dogs.

There are many features as to the probable method of action of the extract—the effect on the liver, etc.—of which time will not permit an explanation. One point seems fairly well established. The diabetogenic factor lies in the anterior lobe and is probably secreted by the eosinophile cells. The only point in question is the directness of the action. Observations by Lucke indicate that the anterior pituitary extract when injected causes a liberation of adrenalin, which in turn leads to insulin antagonism and hyperglycemia. Housay, however, is still of the opinion that the effect is produced directly in the liver, since the removal of

the other glands as well as the adrenals left the chain unaltered. The liver is the only organ necessary for the production of diabetogenic effects by the anterior lobe extract.

To recapitulate, the impression from experimental work seems fairly well established, namely, that there is a distinct antagonism between insulin and the diabetogenic factor of the anterior pituitary.

Clinical Observations Showing the Pituitary Relationship

The more we advance in the knowledge of carbohydrate metabolism and especially as it relates to diabetes mellitus, the more we appreciate that certain clinical findings may be expressions of the pituitary relationship. I wish to enumerate and discuss certain of these clinical findings and show this relationship.

1. *Growth and Weight*.—These simple physical characteristics which often go unnoticed are beginning to be recognized as evidence of importance in the physiology of diabetes. Observations along these lines have produced direct evidence of hypophyseal relationship.

Priscilla White has reviewed the subject in relation to juvenile diabetes, and has included certain data which appear significant. Study of 1,250 patients with juvenile diabetes (onset before the age of fifteen) indicated that 177 showed evidence of pituitary involvement. One hundred seventy-six of these showed involvement of the anterior lobe (9 hyperactivity and 168 hypoactivity). Certain other interesting observations were made in support of her findings.

(a) The age incidence of the onset of juvenile diabetes follows peaks of increasing activity of the pituitary gland. These are about ages six and twelve.

(b) Overgrowth is the most common precursor of juvenile diabetes. Obesity is the most common precursor of diabetes in adults. In adults the most common age group for the development of diabetes is fifty-three years. At this time there is usually an excess of anterior pituitary hormone being produced. This is especially so in women, where an excess of gonadotropic hormone is being produced and excess weight is a common condition. In this connection Young's experiment is very interesting, in that after repeated injections of anterior pituitary extract his dogs became extremely obese prior to the onset of diabetes.

In treating children with the growth hormone it must be kept in mind that one may produce a diabetes through a disturbance of the pituitary. Strauch in 1939 reported a case in a boy seventeen years of age. Six months after the beginning of treatment, violent thirst appeared and he complained of severe exhaustion. Examination revealed sugar and acetone in the urine and a marked elevation of blood sugar value. It was necessary to administer insulin in order to control the condition. The author warns against the indiscriminate use of hormones without strict clinical observation. Also in children hepatomegaly is a complication of diabetes. Inasmuch as it is known that injections of anterior pituitary extract will result in the storage of fat

in the liver we are led to believe in a hormone which controls glycogen metabolism.

2. *Insulin Resistance*.—To those who are familiar with this condition you recognize it at once as one of the difficult problems in the treatment of diabetes. At first the case appears simple enough, but soon we find that it will not respond to ordinary measures of diet and insulin. Instead there is required large doses of insulin out of all proportions to what would appear to be needed. There is a definite insensitivity to the hypoglycemic action of insulin. Many cases require six hundred to one thousand units of insulin a day before the diabetic symptoms are controlled. To date we have had a number of explanations for this phenomenon. These are chiefly infection, allergy, lack of insulin absorption, etc. However, we are beginning to see that the pituitary is likely a factor in a number of these cases. This subject has been splendidly reviewed in a recent article by Martin, Leister, and Strouse. They tabulated in detail not only their own cases, but also many others which they could find in the literature, in an attempt to ascertain the cause of the resistance. A definite pituitary influence was found in many of their cases. Not all insulin resistance cases are due to this, but the activity of the anterior lobe is undoubtedly an extrapancreatic factor. The experiment of De Wesselow and Griffiths is interesting in this respect. They found that the plasma of a certain type of diabetic patient contains an extract of the anterior pituitary. The administration of such plasma to a fasting rabbit results in a depression of the animal's sensitivity to the hypoglycemic action of administered insulin. This experiment lacks confirmation, but it is very suggestive.

3. *Ketosis*.—It has been assumed to date that the development of ketosis is an alteration of fat metabolism associated with altered carbohydrate metabolism. However, it has been shown that the urinary excretions of acetone bodies by fasting or fat-fed rats, normally quite small, may be gradually increased by the injection of anterior pituitary extracts, and there is a similar rise in blood ketones, which is a more sensitive and dependable index of the phenomenon, since acetone and diacetic acid are threshold substances. There is good evidence to show that there is an increased outpouring of ketone bodies by the liver, rather than a diminished utilization of them; and in general the ketosis is accompanied by a transfer of fats from the depots to the liver, in which large quantities may accumulate. This is an important observation.

This stimulation is likely produced by the aforementioned ketogenic part of the diabetogenic factor. There are some confusing statements which arise in regard to this particular point, but it would appear that a new understanding of ketosis is arising which will help greatly in understanding the mechanism.

4. *Dietary Management*.—To date there has been considerable controversy regarding the type of diet which is best in the management of the diabetic. We have gone through the period of high-fat and high-

carbohydrate diet. Most everyone now has agreed upon a middle ground. However, experiments involving the pituitary are beginning to give us a better understanding as to how the type of diet may be of value in the course of the disease. Best, Ribaut, and Haist found in rats that the change in the islet cells which is produced by the injection of anterior pituitary extract, could be prevented by fasting or the feeding of a diet of fat. At the same time there is a definite reduction in the insulin content of the pancreas. On the other hand animals fed on a diet high in sugar content show a marked increase in the insulin content of the pancreas, which is due to an overactivity of the cells.

The importance of this observation, of course, is that a pancreas which is being permitted to rest by dietary measures or by insulin will be saved from degenerative changes. Fasting, fat diets, or insulin inhibit the action of the anterior pituitary and thus prevent the onset of diabetes. If the clinician is convinced that stimulation of the pancreas is necessary, diets rich in carbohydrate and the use of insulin are indicated; but if he believes the pancreas should be rested then the use of fasting, fat feeding, and insulin is desirable. These are important points, and more work should be done along these lines.

5. *Hyperinsulinism*.—Here is a disorder which is the antithesis of what has been presented so far, and is included under this heading inasmuch as it would seem to be definitely associated at times with a pituitary disorder. Practically, this would be one of our best therapeutic approaches to this disease; namely, that an active anterior pituitary would be important in the control of the disease, inasmuch as we wish to reduce the activity of the pancreas. Granted that the case of adenoma might be an exception, the cases of hypertrophy and hyperplasia of the pancreas would seem to present excellent material. This field is entirely new, and there has been very little work along this point, but the application must be kept in mind as one comes in contact with these cases.

There are many other points which might be raised to show the pituitary relationship besides the ones that I have just mentioned. Undoubtedly the pituitary gland plays a part in the pregnant diabetic. It has been thought in the past that the variations in the mother's tolerance was due entirely to the compensatory part played by the pancreas of the fetus. However, in view of the fact that many cases of diabetes in pregnancy are helped by the use of various glandular substances, the effect of these is probably through the medium of the pituitary. At the present time studies along this line are being made, and as our laboratory methods improve we can expect much light to be thrown upon this field. A suggestion has been made that the effect of fever on carbohydrate metabolism may be explained through the action of the pituitary. Zondek and Katz have made some studies in both of these fields, but their conclusions are somewhat indefinite.

All of the points enumerated, I believe, are significant

in showing that there is clinically a definite pituitary influence exerted in diabetes mellitus.

The Significance of the Anterior Pituitary to Human Diabetes

The natural outcome of experiments of Houssay, Evans, and Young has been an attempt to correlate their findings with clinical application. The fact that pancreatectomy in dogs produces diabetes, which could be relieved by insulin, and the finding of islet lesions in many cases of human diabetes led to the view that diabetes was a disease of the pancreas *per se*. The recent work which has just been described showing that the same changes in the pancreas could be produced by pituitary extract has somewhat modified this view.

No doubt human diabetes can result from lesions of the islets due to pituitary origin, and very likely certain changes are taking place in the human pancreas depending upon the severity of the action. Whether or not changes in the human pancreas are similar to those which take place in the dog cannot as yet be proved. The fact that changes cannot be found in many human beings dying of diabetes does not disprove this theory, inasmuch as the material is not examined immediately and to date proper stains have not been used. Also human diabetes usually runs a slower course and the breakdown of the beta cells is so gradual that the discovery of an occasional cell in degeneration is uncommon.

We know that the activity of the pituitary must vary from time to time since our cases of diabetes vary in activity from time to time. Take, for instance, a human patient with very mild diabetes and very obese. Reducing this diabetic may improve the tolerance which will eliminate the disease and possibly make the patient non-diabetic. Also, we know that the action of the sex hormones, which have a definite relationship to the pituitary, vary from time to time. It is conceivable that short periods of hyperactivity of the pituitary might result in liberation of varying amounts of diabetogenic substance which might produce temporary changes or permanent changes.

Ham and Haist believe that "diabetes is due, not to a decrease in a fixed production of insulin, but rather to an increase in the ratio of insulin need to insulin production. The anterior pituitary stimulates the pancreas to excessive function, causing cellular degeneration. The extract acts on the tissues and organs, other than the pancreas, increasing the need for insulin; and it also exerts a trophic effect on the pancreas causing the cells to secrete at a high rate. The early stages of diabetes produced by anterior pituitary extract can be explained by increase need for insulin; the latter stages (permanent diabetes) by diminished production. The diabetes due to increased need will lead to exhaustion of the pancreatic cells."

Clinically, of course, we need in some way to inhibit the activity of the anterior pituitary. A number of attempts have been made to do this. Radiation has been tried without any apparent success. Surgical removal of the pituitary was reported by Chabanier. A successful hypophysectomy was performed which definitely

decreased the amount of insulin needed for treatment. Unfortunately, the boy developed tuberculosis and died, but it does show results from an heroic piece of surgery. It has been definitely shown that injection of estrogenic substances at the time of menopause in diabetics will inhibit the excessive production of the diabetogenic factor and cause a diminution in the insulin requirement. This has been shown repeatedly and, of course, has a definite practical importance in the treatment of diabetics at the time of menopause. There is some proof that androgen treatment will have a similar result in males, but the cases are too few to draw any conclusions.

The importance of recognizing therapy in this direction is not only for the treatment of the disease itself, but for the possible prevention, which is a matter of great importance. The use of insulin alone will not prevent the disease, but if a clear understanding can be had as to the actual relationship of the pituitary we may be able to make strides in this direction. Best et al. have shown that "diabetes can be prevented in a dog receiving injections of anterior pituitary extract, provided simultaneously insulin is administered." This for the first time raises the possibility of a method by which diabetes can be attacked and stopped in its early stages and even avoided by prophylactic means. One further experiment is notable. Depancreatized dogs show a marked decrease in glycosuria when given extra-peritoneal injections of serum from other dogs treated over several months with anterior pituitary extract. This serves the function of an antifactor which is antagonistic to the anterior pituitary.

Case Report

It is at this point that I would like to report briefly a case of my own. I realize that the results and impressions are open to criticism, inasmuch as it was a private case and the observations could not be continued over any length of time, but I believe they are significant enough to show a possible practical application along these lines.

A thirty-five-year-old white man was admitted to Abbott Hospital on May 14, 1941. He stated that he had been well until the spring of 1939, at which time he developed sweating, trembling of the hands, and emotional instability. These symptoms appeared in an attack-like manner, and on two occasions he collapsed without losing consciousness. He was seen through the summer of 1939 in a clinic where a diagnosis of hypoglycemia was made. He was placed upon dietary management and was fairly well controlled until October 14, 1940, when he developed periodic seizures of a similar nature which could not be controlled by dietary means. I first saw him in May, 1941. He was sent to the hospital for the purpose of study and to see whether or not something might be done to help him. General physical examination was negative. The blood pressure was 120/80. There was no suggestion of abnormality in the adipose distribution. The urine examination was negative. The hemoglobin was 83 per cent, and the white count was 6,800. A glucose tolerance test revealed the following:

Fasting—71 mg.
30 minutes—133 mg.
1 hour—90 mg.
2 hours—69 mg.
2½ hours—59 mg.

Simultaneously venous and arterial blood sugars showed 90 and 112, respectively, with a capillary blood sugar loss of 22 mgs. Basal metabolism was normal. The patient was placed upon a diet and was given a course of polyansyn, which is the extract of the anterior pituitary gland and which is shown to have the diabetogenic factor included. After a week's treatment with this drug a glucose tolerance test was as follows:

Fasting—100 mg.
30 minutes—133 mg.
1 hour—102 mg.
2 hours—66 mg.
2½ hours—90 mg.

You can see from these observations that there appears to be a definite rise in the blood sugar. These were the only observations I was able to make, inasmuch as the patient was very actively interested in some operative procedure. He was accordingly advised that a condition in the pancreas existed, the type not exactly known, and that exploration was suggested. The mortality of this was explained to him and it was suggested that I preferred keeping him upon medical treatment. However, he insisted upon the operative procedure. Accordingly, he was referred to a surgeon for section. An adequate exposure of the pancreas was accomplished, and when it was exposed here was found to be a hypertrophy of the gland. There were no adenomatous changes. Therefore, a resection of the gland was attempted. During the course of the resection such extensive bleeding was encountered that it was necessary to stop, pack the wound, and take the patient back to his room. He died on the sixteenth postoperative day, because of a sudden abdominal hemorrhage. Autopsy revealed a pancreas which weighed 126 grams. There was no tumor which could be detected, and the pathologist reported hypertrophy of the pancreas. Death was due to a traumatic hemorrhage from the splenic artery. This case, unfortunately for the surgeon, ended in a catastrophe, and if it had not been for the insistence of the patient in electing surgery, the step might not have been taken. However, be that as it may, it is my purpose in reporting this to bring out what does seem to be a definite antagonism in these glands, the reverse of those found in diabetes mellitus, in order that a more direct relationship of the pituitary might be shown.

Thus I wish again to emphasize that we are approaching a new era in our understanding of this disease. The results of the experiments and the practical applications, though meagre as yet, show definite progress in the right direction. The pituitary gland, I still believe, is the most important gland of all, as it affects carbohydrate metabolism. If we are to progress in the amelioration of this disease, we must be constantly on the alert for new signs and symptoms of pituitary activity.

Summary

1. A review of the literature proves that experimentally there is a definite relationship between the pituitary and the pancreas in diabetes mellitus.
2. The anterior lobe of the pituitary is the active factor in this relationship, and the action is antagonistic to the pancreas.
3. Certain observations are given which show the importance of recognizing the activity of the anterior pituitary, clinically.
4. Points in clinical application are presented and discussed, together with a personal case report, to show

the possibilities in the ever-widening field of diabetes mellitus.

5. If progress is to be made in the treatment of diabetes mellitus we must be on the alert to recognize the influence of the pituitary. It may be possible to alleviate the disease and it is hoped that the disease may actually be prevented.

In closing, I wish to quote from Joslyn's Memorial Address for Banting, presented before the American Diabetes Association:

"In the pituitary gland there is a hormone, not yet isolated, which injected into a dog will cause diabetes, but with each injection until the last massive dose there is a struggle for reversal of the process. There must be something like an antidiabetic hormone. Which one of you will discover it?"

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Discussion

DR. C. B. DRAKE, Saint Paul: One phase of the subject which Dr. Cardle mentioned is the glycosuria occasionally associated with pregnancy. I have never heard a satisfactory explanation of this finding but have thought it probably is associated with the change we know occurs in the pituitary during pregnancy. The enlargement of the pituitary at such times is sufficient to produce a demonstrable contraction in the visual fields. Presumably the enlargement is accompanied by an increased secretion, which might affect the sugar metabolism.

I have observed a woman who during three successive pregnancies ran glucose in her urine in considerable amounts which disappeared upon delivery. The glucose tolerance test was normal, which showed the kidney threshold to be reduced. No dietary control was adopted and no difficulty encountered. The pituitary effect, if that is what causes this condition, is not identical then with the condition known as diabetes mellitus.

I wonder whether Dr. Cardle has any additional ideas on this particular phase of the subject.

DR. MOSES BARRON, Minneapolis: There is no doubt from the clinical standpoint that the pancreas is the most important site for controlling sugar metabolism, but the work of Soskin of the Michael Reese Hospital seems to show that the liver plays a very important part in diabetes. The more recent work seems to show that, contrary to previous teaching, the fats do not burn in the flame of carbohydrate metabolism.

I would like to ask Dr. Cardle a question relative to the case he presented. He mentioned that at the autopsy there was a hypertrophy of the pancreas. Normally the pancreas varies a great deal in weight and it is difficult to decide when there is hypertrophy. Did the microscopic sections show hypertrophy and was there definite hyperplasia of the islands of Langerhans? In hypertrophy, there is more of an increase in the external secretory cells.

The meeting adjourned.

E. V. KENEFICK, M.D.

Secretary

ESOPHAGEAL PERFORATION FROM A STOMACH TUBE

(Continued from Page 280)

and the fascia lateral to the sternohyoid muscle divided to expose the carotid sheath and thyroid gland. The thyroid was retracted medially and the carotid laterally, thus exposing the trachea and esophagus. The dissection was then carried downward behind the esophagus, into the retrovisceral space. In this last procedure care was exercised to avoid injury to the inferior thyroid artery and recurrent laryngeal nerve. On entering the retrovisceral space, material which had escaped from the esophagus was immediately encountered. In this material were small pieces of chicken from her dinner the previous evening. The perforation was posterior and slightly to the left at about the level of the fifth cervical vertebra. The perforation was large enough to admit the tip of the little finger. The tip of the finger was held in the opening while the area below and about was cleaned out. Then iodoform gauze was packed loosely into the space below the opening and brought up and out through the wound. A small piece of rubber tissue was also brought out through the wound and the wound was sutured about these. No attempt was made to close the perforation in the esophagus.

At the time of operation the patient had a temperature of 101 degrees and a leukocyte count of over 14,000. The temperature rose to about 103° after the operation and the leukocyte count rose somewhat during the next two or three days, but both the temperature and the leukocyte count gradually came down to normal in about one week.

The patient was given intravenous glucose for about three days, but then was able to get enough food by mouth. During the first week after the operation considerable of the food came through the sinus. Some discharge continued for from six to eight weeks. The patient has been practically normal since.

Sulfanilamide in the wound and postoperatively was, no doubt, an important factor in reducing the virulence of the infection.

The nearest approach to this case which I have found reported was that of Snyder of Miami. In his case a probang was used to dislodge the material in the esophagus. Operation was not carried out until three days after the accident. Considerable discussion has appeared in the literature as to the treatment of perforations of the esophagus. Some advise treating them conservatively while others are emphatic in advising early operation. Many patients with slowly perforating or minute perforations have recovered without resorting to surgery, but large, immediate perforations of this type are surgical emergencies. The earlier operation is done, the better are the chances of the patient's recovery.

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REPORTS and ANNOUNCEMENTS

MEDICAL BROADCAST FOR APRIL

The Minnesota State Medical Association broadcasts weekly at 10:15 o'clock every Saturday morning over Station WCCO, Minneapolis, Station WLB, University of Minnesota, and KDAL, Duluth. Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

April 4—Progress in Cancer Control

April 11—Cancer of Breast

April 18—Cancer Diagnosis

April 25—Tumors of Mouth

WAR SESSIONS OF THE AMERICAN COLLEGE OF SURGEONS

During March and April a number of one-day "War Sessions" on problems of military service and civilian defense for medical and hospital personnel have been and are being held by the American College of Surgeons in cities throughout the country. On May 1 such a meeting will be held at the Radisson Hotel in Minneapolis.

The meetings open at 9:00 a.m. with panel discussions on treatment of war injuries for the medical profession and a forum on civilian defense as related to hospitals, led by a medical officer of the United States Office of Civilian Defense, for hospital personnel. From 10:45 to noon a joint meeting for physicians, surgeons and hospital representatives is held, with medical officers of the United States Army, the United States Navy, and the Office of Civilian Defense, as speakers. At the joint luncheon which follows, the Procurement and Assignment Service in relation to the medical profession and to hospitals, is discussed by Major Sam F. Seeley, Executive Officer, a specially appointed delegate. In the afternoon, panel discussions for the medical profession are held on treatment of wounds of soft parts and on fractures, and for hospital representatives on special problems incident to the war as affecting hospitals.

The dinner meeting and the panel discussions which follow, on treatment of burns and prevention and treatment of shock, are for the entire group. The representatives of the army and the navy medical corps collaborate with civilian surgeons in leading these discussions.

Hospital representatives and the medical profession in the participating states took advantage in considerable numbers of the opportunity afforded them at the meetings held in March, to obtain direct authoritative information on the meeting of war responsibilities by workers in the health field. The success of these meetings justified their extension to the remaining states as shown by the April schedule. Hospital associations and state and county medical societies are coöperating with the American College of Surgeons in conducting the sessions.

AMERICAN FEDERATION FOR CLINICAL RESEARCH

The second annual meeting of the American Federation for Clinical Research will be conducted at the Center for Continuation Study on the University of Minnesota campus, April 20-21.

The program for the meeting will consist of reports on original research investigation by members. There will be a dinner Monday evening.

Dr. Richard L. Varco is local chairman of the program committee. He is being assisted by members of the executive committee of the Clinical Research Club, University Hospitals: Dr. Charles E. McLennan, Dr. John A. Anderson, Dr. Olaf Mickelsen, Dr. Clarence Dennis and Dr. F. W. Hoffbauer. The latter is chairman of the local clinical society.

Membership in the society is limited to younger men and former members of clinical hospital staffs who have done original clinical research acceptable to the executive committee.

Dr. Maurice Schnitker of Toledo is president of the federation, and will preside at the meeting.

GEORGE CHASE CHRISTIAN LECTURE

Dr. H. B. Andervont, principal biologist with the National Cancer Institute of the National Institute of Health, United States Public Health Service, will present the annual George Chase Christian lecture on Wednesday evening, April 15, in the Medical Science Amphitheater, University of Minnesota Medical School. His subject will be "Recent Trends in Cancer Research."

INTERPROFESSIONAL MEETING

Physicians, dentists, druggists and nurses from ten surrounding counties will meet at an interprofessional dinner to be held at the St. Cloud Hotel, St. Cloud, April 23. The meeting is under the sponsorship of the Committee on Interprofessional Relationships, of which Dr. F. J. Savage of Saint Paul is chairman. Speakers will be Dr. P. F. Meyer of Faribault and Dr. Carl Johnson of Dawson. They will discuss rural nursing problems. Tickets are \$1.00.

STATE MEETING

A program of great interest and variety has been arranged by the Committee on Scientific Assembly for the 89th annual meeting of the Minnesota State Medical Association which is scheduled for Monday, Tuesday and Wednesday, June 29, 30 and July 1, at the newly remodelled Armory in Duluth.

Symposia, demonstrations and conferences will occupy the first half of each morning program and there will be special afternoon discussion on subjects of importance to the war effort in addition to the regular scientific program.

A clinical-pathological conference will start the day's schedule on Monday, with symposia on therapeutics and emergency surgery on Tuesday and Wednesday mornings.

There will be a demonstration of Sister Kenny's method on Monday morning, also. On Monday afternoon a three-cornered discussion on virus diseases in man, in animals and in plants will share attention with an obstetrical demonstration. On Tuesday morning there will be a conference and demonstration on blood plasma and transfusion to share the spotlight with the session on therapeutics. Tuesday afternoon will be devoted to scientific papers including the annual Russell D. Carman Lecture in radiology and also a special nutrition conference at which Dr. Julian Boyd of the Children's Hospital in Iowa City will be guest speaker.

On Wednesday morning there will be a tuberculosis conference in addition to the symposium on emergency surgery as well as clinics at Duluth hospitals arranged by the Academy on Ophthalmology and Otolaryngology. In the afternoon there will be an industrial health and safety conference to which shop managers, safety superintendents and others interested in industrial health will be invited. At the same time, the Academy will hold a special scientific meeting of its own. Guest speakers for this session, Drs. G. H. Haessler of Milwaukee and J. R. Lindsay of Chicago, will appear under Academy sponsorship on the general program Wednesday morning.

Among other out-of-state guests will be Dr. A. J. Carlson of Chicago, Dr. A. J. Quick of Milwaukee, Dr. F. W. Rankin of Lexington, Ky., president of the American Medical Association, and Dr. Arthur C. Christie of Washington, D. C., who will deliver the Carman lecture. Round-table luncheons will feature the first two days of the meeting. The social program will include an entertainment Monday night at the Northland Country Club and the banquet, Tuesday night, at the Hotel Duluth.

THE MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and Country Club in Saint Paul, Tuesday, March 10, 1942. Dinner was served at 6:30 p.m.

The following program was presented:

1. A Clinical Evaluation of Electro-shock Therapy, One Hundred Cases (Inaugural Thesis)
HENRY HUTCHINSON, M.D.
Moose Lake
2. Complexities Concerning Criminal Responsibility
J. C. MICHAEL, M.D.
Minneapolis
W. L. PATTERSON, M.D.
Fergus Falls
3. Lupus Erythematosus Disseminatus, Neurological Findings. (Illustrated with colored motion pictures and slides, pathological demonstrations.)
MAURICE N. WALSH, M.D.
Rochester

MINNESOTA PATHOLOGICAL SOCIETY

When the Minnesota Pathological Society meets April 7, members will hear a paper by Dr. Alvin F. Coburn of Columbia University, New York. Dr. Coburn's subject will be "The Rôle of Hemolytic Streptococcus in the Pathogenesis of Rheumatic Fever."

RED RIVER VALLEY MEDICAL SOCIETY

The midwinter meeting of the Red River Valley Medical Society was held February 19 at Crookston.

Dr. Theodore H. Sweetser of Minneapolis presented a paper, "Injuries and Wounds of the Urinary Tracts," at the medical meeting which followed the dinner at the Hotel Crookston. Dr. W. W. Burnap of Fergus Falls discussed the plan for procurement of physicians for Army service.

SAINT PAUL SURGICAL SOCIETY

A symposium on poliomyelitis will be held at the meeting of the Saint Paul Surgical Society, April 9, at the University Club. The symposium at 7:30 p.m. will be preceded by a dinner at 6:15 p.m.

Appearing by invitation, Dr. Miland E. Knapp of Minneapolis will present a paper on "The Kenny Technique for Treatment of Infantile Paralysis." Dr. Wallace Cole of Saint Paul will discuss the surgical aspects of poliomyelitis.

SCOTT-CARVER SOCIETY

The Scott-Carver Medical Society met at Shakopee on February 17, 1942. Dr. Owen Robbins of Minneapolis spoke on the subject of "Sterility."

STEELE COUNTY MEDICAL SOCIETY

Dr. D. E. Morehead of Owatonna was elected president of the Steele County Medical Society at its annual dinner meeting last month.

Other officers named were Dr. T. W. Stransky, vice president; Dr. R. J. Wilkowske, secretary-treasurer; and Dr. D. H. Dewey, censor for a three-year term. Dr. A. B. Stewart was appointed county representative to the state committee for procurement and assignment.

It was moved and unanimously voted that each member of the society pledge himself to the purchase of at least one defense bond each month.

WASHINGTON COUNTY MEDICAL SOCIETY

The regular meeting of the Washington County Medical Society was held March 10 at Stillwater.

Considerable time was devoted to the Officers' Meeting on February 28, discussion of which was very lively. The Procurement Service questionnaire was discussed at length.

The scientific program was devoted to a colored movie, "Regional Anesthesia," in four reels. These moving pictures in all probability will solve a lot of the questions of scientific programs for many small county societies. The Washington County Medical Society finds the pictures very interesting and instructive.

In Memoriam

Ottul Klaranus Lindboe

Dr. O. K. Lindboe of Lac qui Parle, Minnesota, died on February 5, 1942, at the age of ninety, following a three weeks' illness.

Dr. Lindboe was born at Kongsberg, Norway, November 16, 1851. He attended grade and high school there and night school in Christiania (now Oslo), working during the day to pay his way. His father died when Dr. Lindboe was a small boy but his mother, who was also a doctor, brought her son to America when he was sixteen. After an eight weeks' ocean voyage they landed at Quebec. They traveled on cattle cars to Detroit and then took a boat to Chicago.

In 1868 the doctor started for Colorado with an uncle in search of gold. Having made a stake of about \$5,000 during the year, he and his uncle set out on their return trip to Chicago. Carrying his belongings in a knapsack and sleeping out of doors, the young man awoke one morning to find he had been robbed of his fortune. After doing odd jobs for a time in Chicago he again set out for the West, but again met with misfortune, the party being attacked by Indians. The fight continued for nine days and the party was forced to live on mule meat. The doctor carried the scars of a bullet wound in a leg and an arrow wound in his back.

Returning to Chicago, Dr. Lindboe took a course in pharmacy and later attended Rush Medical College, where he received his medical degree in 1877. For two years he practiced in Illinois, Michigan, and in several Minnesota towns before going to Montevideo in 1879. The same year he married Anna Christine Johnson at Beloit, Wisconsin, and then moved to Lac qui Parle. Except for a few years when he lived in the town of Lac qui Parle, Dr. Lindboe made his home on his farm.

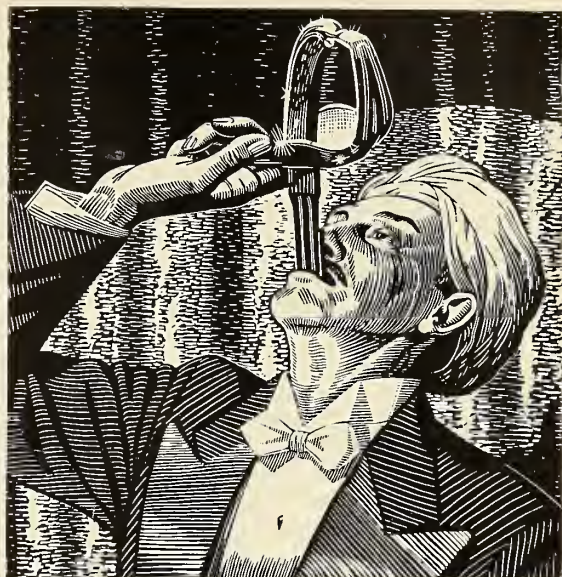
During his residence in the Lac qui Parle community, Dr. Lindboe served for more than thirty years on the school board and for many years on the town and health boards. He was a member of the Riverside Sanatorium board for a number of years but resigned last summer because of failing vision.

Mrs. Lindboe died in 1928. Dr. Lindboe is survived by a son, Andrew, of Minneapolis and three daughters, Mrs. Joe Anthony and Elsie of Lac qui Parle and Mrs. Robert Dahl of Dawson. One daughter, Ella, preceded him in death.

Charles F. McNevin

Dr. Charles F. McNevin of Saint Paul died at St. Joseph's Hospital, February 16, 1942, following an intermittent illness of about two years.

Dr. McNevin was born February 19, 1877, at Cresco, Iowa, the son of George McNevin and Rose McConville McNevin. His parents died when he was very young and he moved to Lawler, Iowa, where he re-



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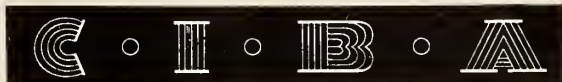
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sided with an uncle and aunt. His early education was attained at Lawler. He received the degrees of Bachelor of Science in 1896, Master of Science in 1899, and a Master of Arts in 1901, all from Upper Iowa University. He thereafter took special graduate work at the University of Wisconsin.

Following his graduation at Upper Iowa University, he was superintendent of schools successively in Elkport, Clermont and Ossian, Iowa, and Graceville, Minnesota. He attained the degree of Doctor of Medicine from Northwestern University, Chicago, Illinois, in 1908.

He served a temporary period as intern at Mercy Hospital, Chicago. He entered the Mayo Clinic at Rochester, Minnesota, on June 18, 1908, and was an intern in St. Mary's Hospital for one year and a surgical assistant for fifteen months. He left the Mayo Clinic September 10, 1910, and entered into the practice of medicine and surgery at Saint Paul, Minnesota, where he practiced until his death.

In 1915 he married Abigail Warner Jones, whom he survived by seven years. No children were born of this marriage.

Dr. McNevin, at the time of his passing, was a member of the Board of Trustees of his Alma Mater, Upper Iowa University. Since 1940 he served as a member of the Board of Public Welfare for the City of Saint Paul and Ramsey County. He was a member of the Ramsey County Medical Society, American Medical Association, and the Alumni Association of the Mayo Founda-

tion. He served in the World War I as a captain in the Medical Corps.

His congenial personality endeared him to a host of friends, and his kind ministrations made him deeply beloved by all his patients. He freely gave of his time and skill to those who came to him in need of surgical or medical care.

No physician was more devoted to his patients, but when away from his professional duties he had a fine sense of humor that was greatly appreciated by all who knew him. He had a particular fondness and love of children, and they reciprocated by genuine response to his delightful personality.

He is survived by his brother-in-law, F. A. O'Connor of Dubuque, Iowa, and two nephews Charles E. O'Connor of Washington, D. C., and Francis J. O'Connor of Dubuque, Iowa.

J. M. CULLIGAN, M.D.

Benzedrine, which has received a reputation as a pep-producer, has been found to have practically no effect upon the activity of the sloth.

Self-disinfecting drinking glasses are under study at the California Institute of Technology—the rims are coated with plastic-silver mixture said to kill practically all liquid-borne bacteria.

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WOMAN'S AUXILIARY

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Saint Paul, Minnesota

MRS. L. R. BOIES, *Publicity Chairman*

Knollwood, Hopkins, Minnesota

East Central

The February meeting of the East Central Counties was held at the home of Mrs. L. Hedenstrom at Cambridge, Minnesota, on the 17th. Mrs. David Gavis, Princeton, was appointed Public Relations chairman. Most of the members are busy with local Red Cross knitting and some of the women are teaching Home Nursing Courses.

Renville

On February 8, Renville County Auxiliary held its regular monthly meeting at Olivia, Minnesota. Very interesting pictures of big game hunting in Canada and Alaska were shown by Dr. J. Cole of Redwood Falls.

Sincere sympathy from all members of the Auxiliary is extended to Dr. F. W. Penhall and family of Morton, in the death of Mrs. Penhall, February 9, 1942. Mrs. Penhall was a charter member of the County Auxiliary and was held in high esteem not only by this group, but by the community at large.

Goodhue

Mrs. E. M. Baldigo, Red Wing, Minnesota, opened her home to members of Goodhue County Medical Auxiliary, February 10. Mrs. E. H. Juers presented some very interesting material on the use of puppet shows in teaching rural children the needs and reasons for vaccination and inoculations.

Recently, five Auxiliary members including Mesdames E. M. Baldigo, R. V. Sherman, R. B. Graves, G. C. Kimmel, and E. H. Juers presented such a puppet show at an evening meeting of the Hay Creek 4-H Club. It was the highlight of the evening! Much credit goes to Goodhue Auxiliary, a new group, for planning such an interesting and unique project!

Hennepin

Hennepin members have had another busy month. On the evening of February 24, a Red Cross Benefit party was given in the Medical Assembly of the Medical Arts Building. A gay nineties show was the theme of the program. Clever numbers by the Auxiliary Octet under the direction of Mrs. Gilbert Seashore were introduced by Mrs. Ralph Knight. Assisting the octet and prominent in parts were Mmes. J. M. Hall, Horace Newhart, L. S. Arling, Malvin Nydahl, Harvey Nelson, W. J. Brynes, C. A. McKinlay, Joe Neale, J. S. Reynolds, and Drs. Annette Stenstrom and Erling Hanson. Minor parts were taken by Mmes. Elmer Lundquist, Wallace Beckman, and Ralph Creighton. The octet included Mmes. A. N. Russeth, W. R. Jones, R. H. Lindquist, Leo Fink, T. H. Sweetser, K. W. Anderson, E. T. W. Boquist. The musical accompaniment was furnished by the "be-wigged and be-moustached" orchestra which included Drs. Paul Giessler, Lewis Daniel, R. T. LaVake, A. E. Cardle, and F. H. Schaaf.

The last, but by no means the least humorous, part of the program was a "take-off" on the ladies' entertainment and was produced by a men's octet in women's costumes, also of the gay nineties period. The following performed and sang in this group: Drs. E. G. Oppen, R. O. Quello, Elmer Lundquist, C. G. Arvidson, H. F. Wahlquist, Ralph Knight, Malvin Nydahl, and Roger Hallin. Delightful color for a "Mammy" song was furnished by two unusually corpulent Negroes played by Mmes. A. A. Wohlrabe, and Reuben Erickson. The audience enjoyed the program thoroughly, and no doubt the actors and actresses had some fun, too.

Following the entertainment, light refreshments were served by the social chairman, Mrs. John Curtin, and her committee. Mrs. Harold Wahlquist acted as general chairman of the party and Mrs. Frank Bryant as ticket chairman.

On March 6, seventy-five members of the Auxiliary heard Dr. Emilio Le Forte, University of Minnesota, speak on "Our Neighbors to the South." Following the meeting, Mrs. J. C. Davis assisted by Mmes. Herman Drill and Willis Thompson, served tea. Hostesses for the day were Mrs. L. J. Leonard and Mrs. L. K. Buzzelle.

St. Louis

Mrs. P. S. Rudie, Duluth, president of St. Louis County Auxiliary, has moved with her family to Bremerton, Washington, to be with her husband, who is attached to the Naval Base Hospital there. Mrs. H. J. Bianco, Duluth, is now acting president of the Auxiliary.

Ramsey

Many Ramsey County Auxiliary members are working hard in their very successful Red Cross Unit. Others are busy planning two important teas to be given in April. One, the Auxiliary Public Relations Tea, will take place April 27. At the time of the meeting of the American College of Physicians to be held in Saint Paul, April 21-25, the Auxiliary with the Women's Entertainment Committee of that group will give a joint tea. Mrs. E. V. Goltz, Saint Paul, is general chairman of the entertainment committee for the wives of the visiting doctors coming to the city at the time of the meeting.

Mrs. J. A. Cosgriff, Olivia, chairman of *Hygeia*, is to be commended on a fine piece of work. Recently, a check for \$221.25 was received from the State Medical Association in payment for *Hygeia* subscriptions for all State Senators and Representatives.

The State Medical Association convention is to be held in Duluth, June 29, 30 and July 1, 1942. Why not plan, now, to be there?

In a few more months the members of the Woman's Auxiliary of the American Medical Association will be arriving in Atlantic City, New Jersey, for their annual convention, June 8-12. Have you made your reservations? If not, send your request *at once* to Haddon Hall, Atlantic City, New Jersey.

◆ OF GENERAL INTEREST ◆

Dr. C. G. Uhley of Crookston and Dr. Harry B. Neel of Albert Lea have been certified by the American Board of Surgery.

* * *

Dr. Charles E. Stafford is back at Baudette after completing a postgraduate course at Cook County Hospital in Chicago.

* * *

Drs. Arthur B. Roehlke and Gordon H. Tesch of Elk River now have offices in a new building constructed for their use.

* * *

Dr. Earl J. Boehme of Minneapolis left March 26 for Boston, where he has accepted a fellowship in surgery at the Lahey Clinic.

* * *

When the University of Buffalo Medical Alumni Association held its eighth annual spring clinical day, March 28, in Buffalo, New York, Dr. Philip S. Hench of Rochester was among the speakers.

* * *

Dr. Henry B. Clark, Jr., of Saint Paul recently returned to Camp Robinson, Arkansas, after taking a course of instruction on maxillo-facial surgery at the Army Medical Center, Washington, D. C.

* * *

Dr. William C. McCarty, professor of pathology, University of Minnesota Graduate School, Minneapolis and Rochester, was the speaker at the ninth annual lecture course of the San Jose (California) Hospital Association, March 23-27. The course was concerned with the early clinical diagnosis of neoplastic diseases.

Dr. Wallace S. Petty, who recently completed a public health course at the University of Minnesota, Minneapolis, has been appointed director of local public health service for the Nebraska State Department of Health, Lincoln.

* * *

Dr. Bertram S. Adams has been named chief of staff of the new Hibbing General Hospital which was dedicated, March 1. Dr. Adams is head of the Adams Clinic and past president of the Minnesota State Medical Association.

* * *

Dr. George Halladay, Brainerd physician, has been promoted to captain and assigned to the medical detachment of Saint Cloud, First Service Regiment, Minnesota defense force, it is announced by Adj. General E. A. Walsh.

* * *

Dr. Henry Silver who has been located at Sebeka since he took over the practice of Dr. A. H. Borgerson more than a year ago, has been called to active service with the United States Army Medical Corps. He has been assigned to Camp Barkley, Texas.

* * *

Because college men have been declared by a special University of Minnesota investigating committee to be less fit for military service than others, action is being taken to institute some type of physical and health development program. The College of Education already has adopted an extension of previous physical education requirements.



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OF GENERAL INTEREST

Dr. and Mrs. V. W. Carlson of Blooming Prairie spent part of last month in Brownsville, Texas, Dr. Carlson recuperating from his recent illness before resuming his practice.

* * *

Dr. Charles W. Mayo of Rochester delivered the annual LeRoy Long Memorial lecture sponsored by Phi Beta Pi fraternity at the University of Oklahoma, Oklahoma City, March 13. His topic was "Principles of Surgery of the Colon."

* * *

Dr. and Mrs. Wallace P. Ritchie of Saint Paul are the parents of a son, Daniel Goodhue, born February 15. Dr. Ritchie is on active duty with the United States General Hospital No. 26, University of Minnesota group.

* * *

Dr. Gaylord W. Anderson, head of the department of preventive medicine and public health at the University of Minnesota, and Dr. Wesley W. Spink, associate professor of medicine, have been appointed consultants to the Secretary of War on epidemic diseases.

* * *

Dr. Frank H. Krusen of Rochester spoke on "The Relation of Physical Therapy in War" at the spring session of the Midwestern Section of the American Congress of Physical Therapy held in Iowa City, April 6.

* * *

Captain Raymond A. Lawn of Minneapolis was among the members of the United States Army Medical

Corps who were graduated from a special course in the Medical Field Service School at Carlisle Barracks, Pennsylvania, February 20.

* * *

Among speakers at the forty-second annual meeting of the American Association of Pathologists and Bacteriologists held at the Washington University School of Medicine in St. Louis, April 2-3, was Dr. E. T. Bell of Minneapolis. His subject was "The Vascular Changes in the Kidney in Diabetes Mellitus."

* * *

Dr. Owen H. Wangenstein, head of the department of surgery at the University of Minnesota Medical School, will give a paper at the annual convention of the American Surgical Association in Cleveland, April 6-8. His paper is entitled, "New Operative Technics in the Management of Bowel Obstruction."

* * *

Among new Fellows in the Mayo Foundation at Rochester is Dr. William M. Faber of Watertown, Wisconsin, a graduate of the University of Wisconsin Medical School. Dr. Faber interned at the Charles T. Miller Hospital in Saint Paul. He has been instructor in anatomy at the University of Wisconsin since July, 1940.

* * *

Dr. T. J. Bloedel, a member of the staff of St. Barnabas Hospital in Minneapolis, has moved to Gaylord where he will open offices. A graduate of the University of Minnesota Medical School, Dr. Bloedel served his internship at Minneapolis General Hospital and was a clinical assistant in medicine at the University Hospitals.



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Dr. Gerhard E. Knutson has become associated in practice with Dr. Vernon D. E. Smith, Dr. Malcolm Pearson, Dr. Henry Reif and Dr. Herman Wolff in Saint Paul.

For the past year, Dr. Knutson has been doing post-graduate work in children's diseases at the Children's Memorial Hospital in Montreal, Canada.

* * *

When the American College of Radiology held its twelfth annual conference meeting with teachers of clinical radiology, February 15, in Chicago, Dr. Byrl R. Kirklin of Rochester led a panel discussion on "Should the Training of Residents and Fellows in Radiology Be Modified During the Period of the War?"

* * *

When the second American Congress on Obstetrics and Gynecology is held in St. Louis, April 6-10, Dr. Alexander E. Brown and Dr. Lawrence M. Randall of Rochester will present papers. Dr. Brown's subject is "History and Pharmacologic Aspects of Chemotherapeutic Drugs," and Dr. Randall's, "Gonadotropic Hormones."

* * *

Dr. Jennings C. Litzenberg, professor emeritus of obstetrics and gynecology at the University of Minnesota, was invited to give the Charles Sumner Bacon lectures in his specialized fields at the University of Illinois College of Medicine, March 18 and 19. His subjects were "The Significance of the Decreased Maternal Mortality Rates" and "Tradition and Truth Concerning Ectopic Pregnancies."

* * *

Dr. Leo G. Rigler, head of the department of radiology, University of Minnesota School of Medicine, will be a guest speaker at the meeting of the South Dakota State Medical Association in Sioux Falls, May 15. His subject will be "Differential Diagnosis of Pulmonary Diseases."

On March 6, Dr. Rigler addressed the Detroit Roentgen Ray Society.

* * *

Dr. Irvine McQuarrie and Dr. Arild E. Hansen of the University of Minnesota School of Medicine, department of pediatrics, will take part in a symposium on "Regeneration of Blood Protein in Clinical Conditions" at the meeting of the American Institute of Nutrition to be held in conjunction with the meeting of the Federation of American Biological Societies in Boston, April 1-5.

* * *

Dr. E. T. W. Boquist of Minneapolis, former fifth district American Legion commander, has been elected chief medical officer of the Minnesota Soldiers Home by the board of directors. He succeeds Dr. Oliver R. Bryant who resigned recently after nine years as chief medical officer.

The appointment of Dr. Boquist, a graduate of the University of Minnesota Medical School, was effective April 1. Dr. Boquist is a member of the staff of Swedish Hospital.

Dr. Edward Dyer Anderson, Minneapolis child specialist and an associate of Dr. Max Seham for fifteen years, has been named a lieutenant commander in the United States Navy.

Dr. Anderson, who volunteered his services as a medical specialist, reported to Washington March 18, and is assigned to the navy dispensary.

Mrs. Anderson will join her husband in Washington.

* * *

Guest speakers at the ninety-first annual session of the Iowa State Medical Society to be held in Des Moines, April 15-17, will include Dr. John L. McKelvey of Minneapolis, head of the department of obstetrics and gynecology, University of Minnesota Medical School, and Dr. James T. Priestley of Rochester.

Dr. McKelvey's subject will be "Cesarean Section," and Dr. Priestley's, "Carcinoma of the Stomach."

* * *

Drs. Lee, Westby and Westby last month moved into their new clinic building in Madison, Minnesota. A modern, well-arranged brick structure, the Madison Clinic is 42 x 52 feet and is divided into thirteen rooms. The waiting room has a seating capacity of twenty-five people.

Dr. Nels Westby and Dr. W. N. Lee have been associated in practice since 1915. They were joined in 1927 by Dr. Magnus Westby.

* * *

Cancer statistics for Minnesota show a steady yearly increase in the number of deaths, according to Dr. W. A. O'Brien, president of the Minnesota Society for the Control of Cancer. In 1910 there were 1,532 deaths, while in 1940 there were 3,767. These facts revealed a circumstance peculiar to Minnesota alone—that in 1940, 53 per cent of the deaths were males and 47 per cent, females. Although the disease occurred in all age groups, it took its greatest toll among those forty-five to seventy-four years of age.

* * *

Among charter members of the newly organized American Gastroscopic Club are Dr. James B. Carey of Minneapolis and Dr. Herman J. Moersch of Rochester. In the society's objectives, emphasis is placed on the fact that the gastroscope should be an instrument used by internists and surgeons and not by technical specialists.

Applicants for membership must have adequate training in internal medicine, gastro-enterology or surgery; they must be members of a scientific organization of high standard or they must be certified by the boards of internal medicine, gastro-enterology or surgery, and they must be recommended by two active members.

* * *

The first course of instruction in the Kenny method for medical directors of physiotherapy training schools was presented at the Center for Continuation Study on the University of Minnesota campus, March 28-April 2.

This will be followed by other courses of one-week's duration for orthopedists, pediatricians, neurologists and public health physicians, in groups of fifteen.

There will also be courses of instruction of one week's duration for nurses in key teaching positions in

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FRACTURES & TRAUMATIC SURGERY—Two Weeks Intensive Course will be offered starting May 4, June 29 and September 21. Informal course available every week.

GYNECOLOGY—Two Weeks Intensive Course will be offered starting June 15 and October 19. One Month Personal Course starting August 3. Clinical and Diagnostic Course every week.

OBSTETRICS—Two Weeks Intensive Course will be offered starting October 5. Three Weeks Course starting May 25 and August 10. Informal Course every week.

OTOLARYNGOLOGY—Two Weeks Intensive Course will be offered starting September 14. Clinical and Special Courses every week.

OPHTHALMOLOGY—Two Weeks Intensive Course will be offered starting September 28. Five Weeks Course in Refraction Methods starting May 11 and October 9. Informal Course every week.

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the nursing aspects of the Kenny technique. These will be given for groups of twenty-five.

Courses of two to six months' duration will be offered registered physiotherapy technicians. A series of proficiency tests will be given at the end of a two months' probation period and thereafter until the method is mastered. Upon successful completion of the course, a certificate of proficiency will be issued.

This series of courses will be repeated whenever the occasion demands during the next six to twelve months or until all who desire instruction have received it.

For further information, apply to the director of the Center for Continuation Study, University of Minnesota, Minneapolis.

* * *

Retiring after thirty-nine years of active practice in North Saint Paul, Dr. E. W. Cowern has gone to Seattle, Washington, to make his home with his daughter.

Dr. Cowern, who is seventy-one years old, graduated with honors from Dartmouth Medical College in 1902. He began his practice in North Saint Paul the following year. During the First World War, Dr. Cowern served as medical instructor and later as Camp Sanitary Officer.

Dr. Cowern has served as North Saint Paul health officer, deputy coroner, school physician. He was on the staff of St. John's Hospital for many years, and served as chief of staff for a term.

Four continuation courses were offered at the University of Minnesota Center for Continuation Study last month.

Guest speakers for the course in Otolaryngology, March 2-7, included: Dr. Gordon F. Harkness of Davenport, Iowa, chairman of the section on Laryngology, Otology and Rhinology, American Medical Association; Dr. James H. Maxwell of Ann Arbor, Michigan, assistant professor of otolaryngology, University of Michigan Medical School; Dr. Wellwood Nesbit, professor of otolaryngology, University of Wisconsin Medical School, Madison; Dr. Lyman G. Richards of Boston, director of the Bronchoesophagoscopy Clinic, Massachusetts Eye and Ear Infirmary; Dr. Oliver E. Van Alyea, associate in otolaryngology at the University of Illinois College of Medicine, Chicago.

A course in Diseases of Rectum and Colon was offered March 23-28.

Dr. Mary Karp of Chicago was guest speaker at the continuation course in Anesthesiology for Nurse Anesthetists, March 26, 27, 28. Dr. Karp is clinical assistant in surgery at Northwestern University Medical School and chief anesthetist at Wesley Memorial Hospital.

Guest speakers for the course in Roentgenology of the Head and Neck, March 30-April 1, were Dr. William E. Chamberlain, professor of radiology, Temple University School of Medicine, Philadelphia, and Dr. Arthur E. Childe, roentgenologist, Montreal Neurological Institute, Department of Neurology and Neurosurgery, McGill University, Montreal.



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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

SURGERY OF THE AMBULATORY PATIENT. L. Kraeer Ferguson, A.B., M.D., F.A.C.S. Lieutenant Commander, Medical Corps, United States Naval Reserve; Assistant Professor of Surgery, University of Pennsylvania; Assistant Surgeon, Hospital of the University of Pennsylvania; Surgeon, Philadelphia General Hospital and Doctors Hospital, etc., etc. With a section on Fractures by Louis Kaplan, A.B., M.D., F.A.C.S. Associate in Surgery, University of Pennsylvania; Associate in Surgery, Mt. Sinai Hospital; in Charge of Fracture Division of the Surgical Out-Patient Department, Hospital of the University of Pennsylvania. 923 pages. Illus. Price, \$10.00, cloth. Philadelphia: J. B. Lippincott Co., 1942.

COMMUNICABLE DISEASE NURSING. Theresa I. Lynch, R.B., Ed.D. Instructor in Education, New York University; Formerly Superintendent of Nurses and Director of Instruction, the Willard Parker Hospital, New York. 678 pages. Illus. Price, \$3.75, cloth. St. Louis: C. V. Mosby Co., 1942.

SYMPTOM DIAGNOSIS. Regional and General. 4th ed. Wallace Mason Yater, A.B., M.D., M.S. (in Med.), F.A.C.P. 900 pages. Price \$10.00 New York: D. Appleton-Century Company, Inc., 1942.

This volume is a valuable supplement to the practicing physician's library as it makes available in convenient form symptoms referable to the various system diseases. To facilitate quick reference there is a complete index and classification under regional symptoms as well as tables of differential diagnosis. This volume should aid in interpretation of symptoms not commonly encountered.

C. A. MCKINLAY.

BORN THAT WAY, Earl R. Carlson, M.D. 174 pages. Price \$1.75. New York: John Day Co., 1941.

This is the autobiography of a victim of spastic paralysis; Dr. Carlson, with marked candor, tells the story of his life. In the first chapter he tells of his childhood, the difficulties he had in learning to walk and talk, how he was taken by his mother from one clinic to another and of their hopeless prognosis. He then tells of the difficulties he had in school, how he was unable to write or recite in his class because he could not control his muscles. He also tells of his many embarrassments during his college course and how discouraged he became during his medical course at Yale, especially in anatomic dissections. The last few chapters are devoted to his experiences in the neurologic clinic for spastics. He describes how muscle training and education have changed children who were once considered hopeless cripples into happy and self-supporting individuals.

I consider this book of great benefit to both the physician and the parents of a spastic child, and I have advised any parents who have one of these children

to get the book and read it, as I am sure they will get a great deal of help and encouragement from Dr. Carlson's own life and experiences.

ALEXANDER STEWART, M.D.

THE CARE OF THE AGED (GERIATRICS). Malford W. Thewlis, M.D. 3d edition. 579 pages illus. \$6.00. St. Louis; C. V. Mosby Co., 1941.

In interesting reading and in condensed form, the author covers our present knowledge of old age. The opening chapter states that Hippocrates, Celsus, Galen, Sanctorious, Kaan Boerhaave, Cicero, and others were familiar with the problems characteristic to the senescent age. Under the chapter "Value of Old Age," there is a long list of names of notable men and women who did their best work between the ages of seventy and ninety years. Among them were Goethe, Herbert Spencer, Oliver Wendell Holmes, Gladstone, the Drs. Blackwell (sisters), Thomas Edison, Mrs. Osler (William Osler's mother), and Rockefeller.

The remaining chapters deal with the neglect of old age, and the various diseases, with treatment, peculiar to the senescent age, and how they differ from pre-senescent diseases. Case histories are freely given. In pneumonia great stress is placed on clinical signs. When there is a normal pulse and an absence of sputum, chill, fever and pain, the frequent white blood cell counts determining the percentage of leukocytes and

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the presence of toxic granules, which is one of the most constant findings, decides the diagnosis. Roentgen therapy, the author says, has cured some carcinomata, and caused many. He recommends x-ray in diagnosis. In contrast to the normal senescence, is the opposite, where previous sickness, injuries and hardships result in various stages of senescent invalidism.

Old age hasn't definite limiting lines; it can begin in the forties. It covers a large part of one's lifetime. The author shows that it is a valuable age; that it has been a neglected age; and that it is worthy of a place among the specialties.

NELLIE N. BARNES, M.D.

CANCER OF THE FACE AND MOUTH. Diagnosis, Treatment, Surgical Repair. Vilray P. Blair, M.D., Sherwood, Moore, M.D., and Louis T. Byars, M.D. 599 pages. Illus. Price \$10.00. St. Louis: C. V. Mosby Company, 1941.

This last work on carcinoma of the face is probably the most extensive and profound that has yet come out on this subject in the English language. The matter is taken up in systematic form—the cheeks, the neck, the mouth, et cetera, and each handled in a very thorough and detailed manner.

The methods of therapy are well considered including both radiation and surgery, and by far the most valuable part, in my opinion, is the description of the plastic procedures employed by the author and the astonishing results that were obtained in a good many cases as shown by the photographs especially. One must con-

sider how thoroughly hopeless such cases usually are without the plastic procedure. The photographs number well over two hundred, and as it is well known that one picture is better than ten thousand words, one can readily see the extensive value of this work.

At the end of the book there is a chapter dealing entirely with technique on plastic surgery, and this to the surgeon is of paramount value. All in all, this book is a very valuable addition to the works already in existence on malignancy of the face, and it should serve as a criterion to both radiologist and surgeon for a decade of years.

E. Z. SHAPIRO, M.D.

The Japanese death rate is 17.4 per 1,000 as compared to 10 or 11 in the United States. Japan's present death rate, in fact, resembles ours of 1900. Individual causes of death in Japan are about as prevalent now as in this country about 1900. For example, the United States tuberculosis death rate now is 45 per 100,000. In Japan in 1937 the rate was 204, closely resembling our tuberculosis death rate in 1900 of 196. The picture is similar for diarrhea and enteritis. America has more than twice as many men to draw on in the military age group as Japan—25 million men from 20 to 34, as against Japan's 11 million in this age group.—Science News-Letter, Jan. 17, 1942.

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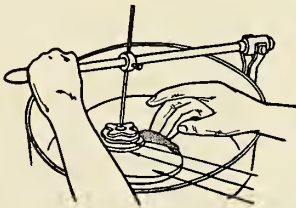
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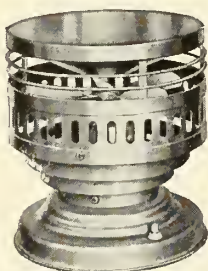
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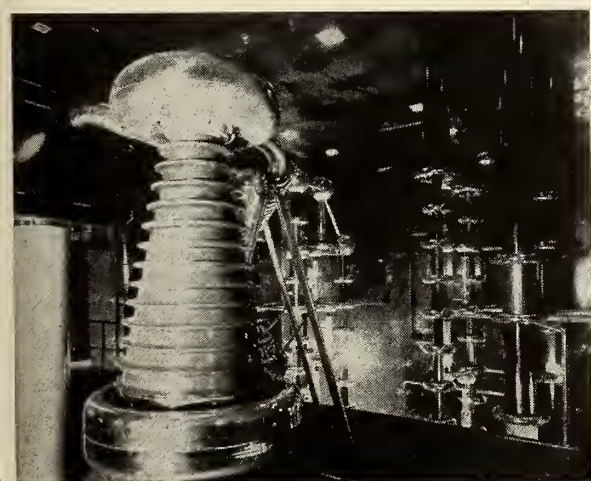
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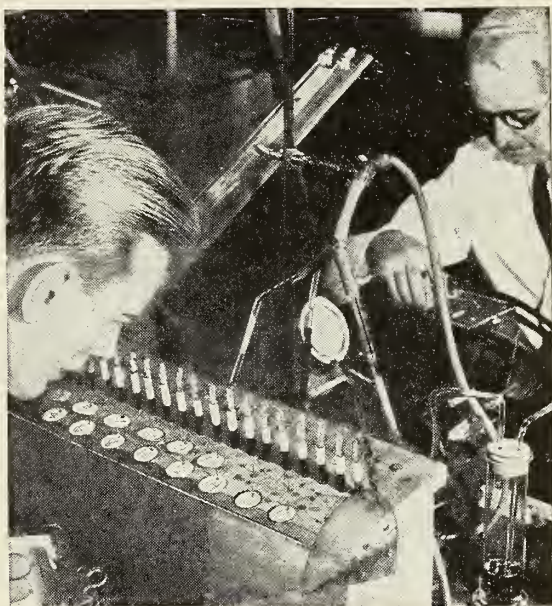
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Brückner, H—Die Biochemie des Tabaks, 1936

** The Military Surgeon, Vol. 89, No. 1, p. 7,
July, 1941

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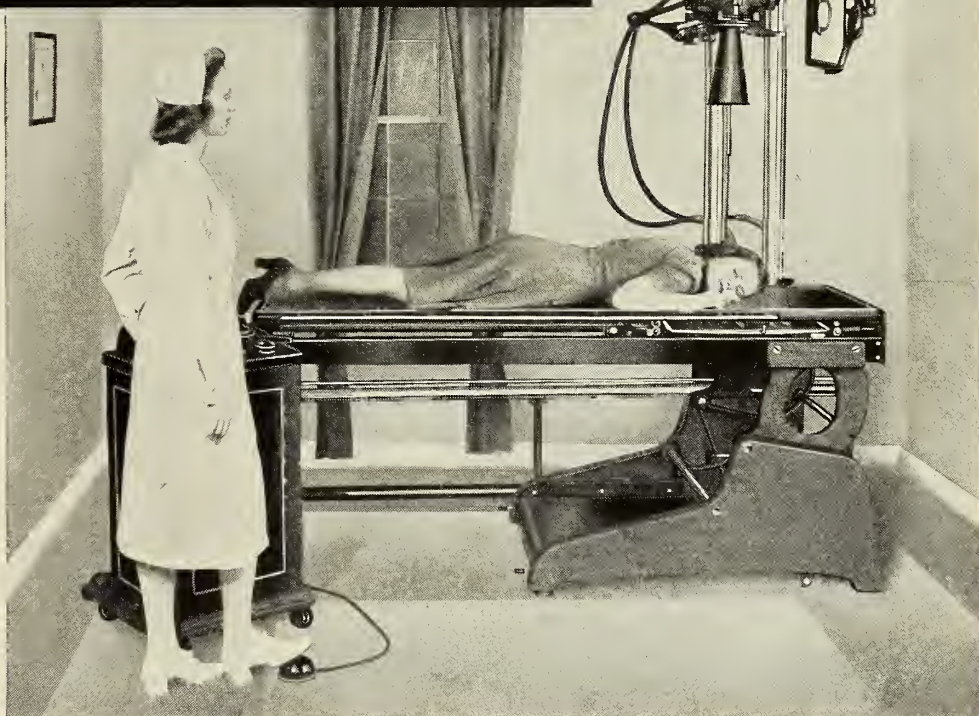
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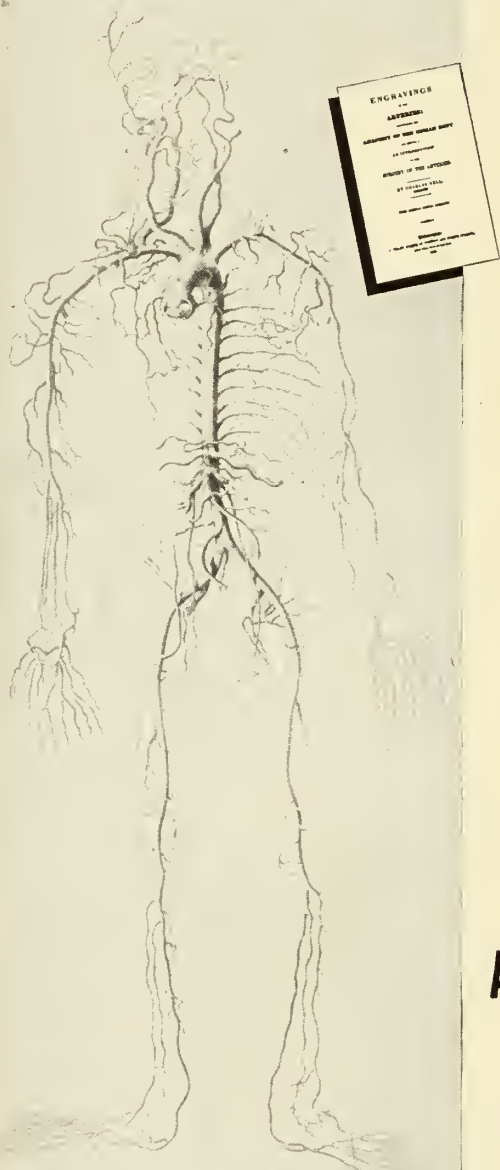
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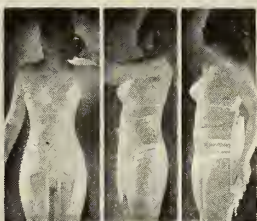
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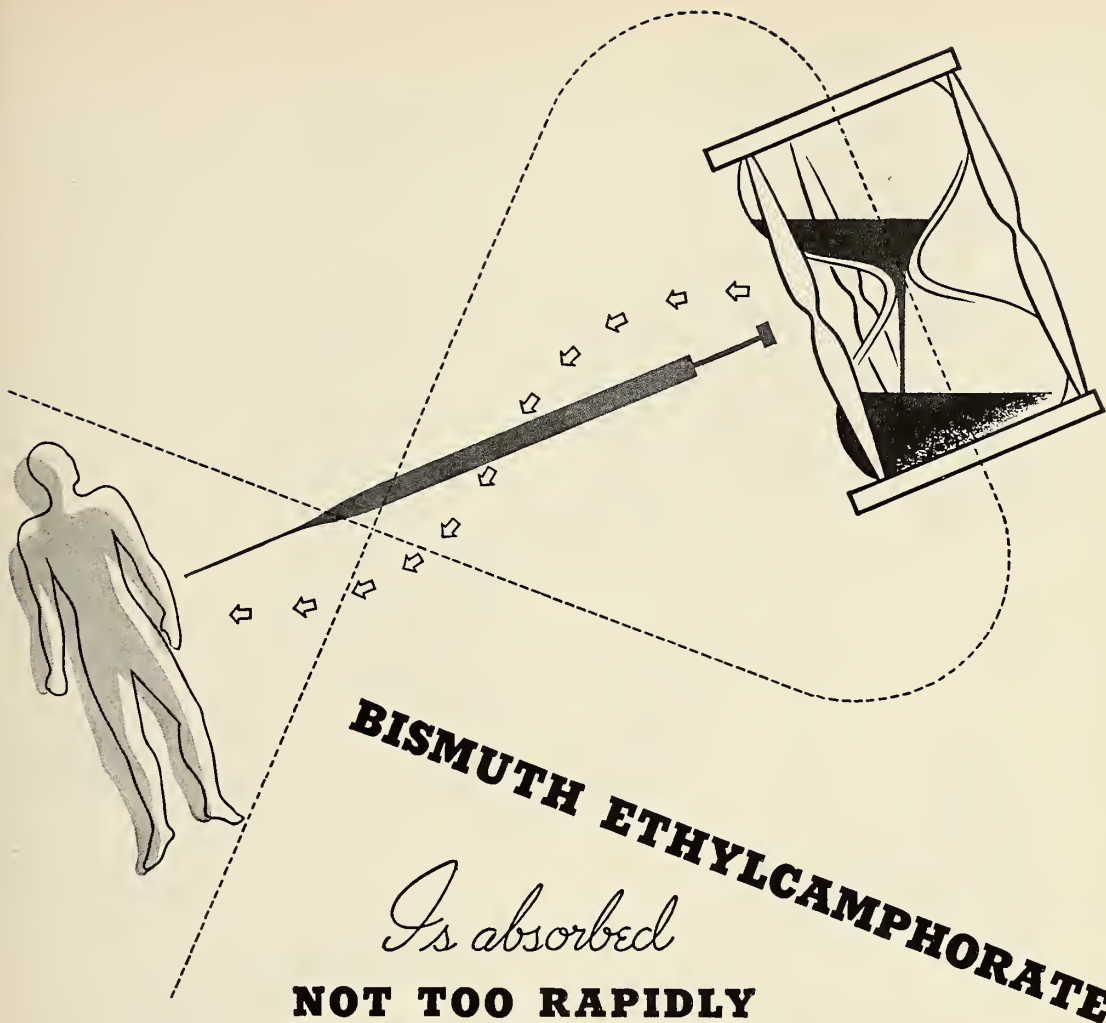
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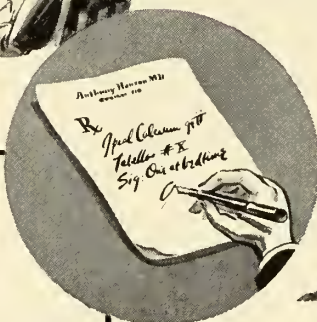
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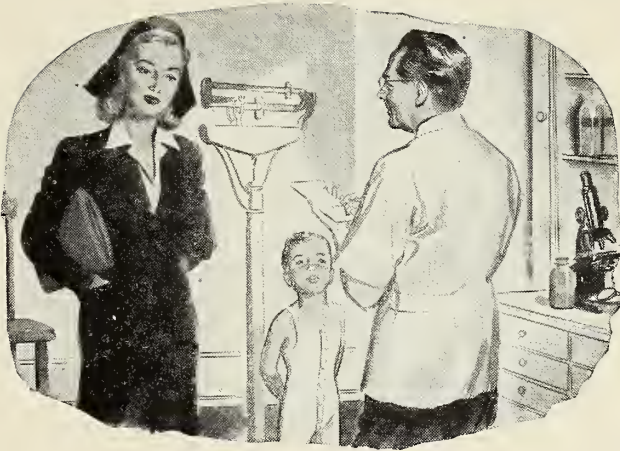
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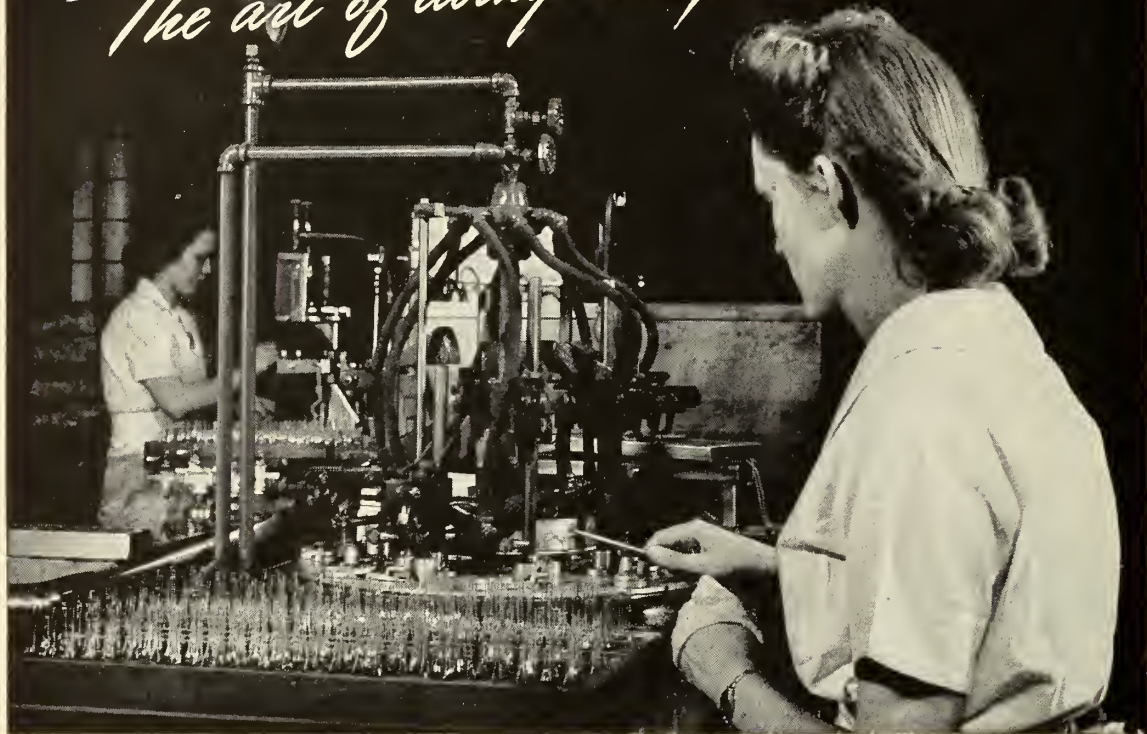
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- (1) 1926. U. S. Dept. of Commerce, Bureau of Fisheries, Document No. 1000.
 1934. U. S. Pub. Health Reports 49, 754.
 1937. U. S. Dept. Agr. Misc. Publ. No. 275.
 1938. Food Research 3, 549.
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MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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May, 1942

No. 5

CHEMOTHERAPY IN EXPERIMENTAL TUBERCULOSIS

WILLIAM H. FELDMAN, D.V.M., M.S.

Rochester, Minnesota

TO BE invited to prepare and deliver the John W. Bell Tuberculosis Lecture is a high honor indeed. While I am grateful for that honor, I am also concerned with the responsibility assumed when I accepted your committee's invitation. The subject suggested for discussion was chemotherapy in experimental tuberculosis. In view of the attention given to the chemotherapeutic attack on such a wide variety of different diseases during the past five years, it is perhaps timely that this form of therapy be reexamined in its relation to tuberculosis.

There has been no more fascinating nor epochal phase of modern medicine than the development and clinical application of new drugs that have conquered infections due to streptococci, meningococci, gonococci and pneumococci. This is only a partial list of the infectious agents that have been shorn of their disease-producing and perhaps life-taking propensities by the relatively new sulfonamide-containing drugs. New compounds are constantly being prepared and the possibilities for future development that may eclipse even the spectacular achievements already witnessed are limited only by the imagination of the research chemist.

Although the use of chemical agents in the treatment of infectious diseases has been practiced ever since the discovery of pathogenic bacteria, until relatively recently there have been only three chemotherapeutic agents that might be considered as specific in the treatment of disease. These were mercury for syphilis, quinine for malaria and ipecac for dysentery. Modern chemotherapy dates from 1909 when Ehrlich's

brilliantly conceived and systematically pursued studies culminated in the discovery of arsphenamine. This is considered by many as the greatest triumph of modern chemotherapy up to the time that Domagk announced that prontosil when given orally had prevented the development of otherwise fatal hemolytic streptococcal infections in mice. Although Domagk's work apparently was done in 1932, it was not announced publicly until February, 1935.⁴

The present successful but limited chemotherapy which has revolutionized the treatment of many bacterial infections has stimulated an interest in this form of therapy that is comparable to that generated by the findings of Lister and those of Ehrlich. Theoretically it should be possible to provide for every bacterial and parasitic disease a suitable chemical substance that will destroy the infective agent without exerting serious toxic effects on the host. However, up to now there exist many practical considerations that impose definite limitations to the general application of chemotherapy. Nevertheless when one considers what has been accomplished during the relatively short period since the therapeutic value of prontosil was discovered, it is difficult to overstate the possibilities of the future.

In this presentation the time allotted makes it necessary that the subject matter be somewhat circumscribed. Successful chemotherapy in tuberculosis has been the objective of countless investigations since the time of Koch. To give a detailed account of all the attempts that have been made to find a chemical substance that would be effective against a tuberculous infection would perhaps be unwarranted, since several excellent

John W. Bell Tuberculosis Lecture, Minneapolis, Minnesota, February 2, 1942. From the Division of Experimental Medicine, The Mayo Foundation, Rochester, Minnesota.

reviews are available for those who are especially interested. Suffice it to say that although the agents tried have included such diverse substances as the heavy metals and the fatty acids of chaulmoogra and of cod liver oil, the long awaited and fervently hoped for chemical agent that can be depended on to combat successfully tuberculosis in human beings, remains to be demonstrated.

Writing in 1923, Calmette concluded his discussion of the chemotherapy of tuberculosis by the following statement: "It must be recognized that up to the present despite the great number of attempts made to discover among chemical agents a substance capable of arresting the development of experimental tuberculosis in the guinea pig and the rabbit, these efforts have been in vain." This conclusion was essentially that of Wells and Long²⁰ who wrote in 1932 that "No specific chemotherapeutic agent has been found for tuberculosis. No chemical yet used has cured the disease in the experimental animals employed." Corper² recently reviewed the question of chemotherapy of tuberculosis. He evaluated the data available up to the early part of 1940 and concluded that there was no specific chemotherapeutic agent of proved value in tuberculosis either in the sense of Ehrlich in which drugs in lethal doses are able to kill all the specific disease-producing organisms within the body at a single dose or in an etiotropic or parasitotropic sense. Kolmer and Tuft, writing in 1941, concluded that the only agents that have been at all effective in the chemotherapy of tuberculosis are the compounds of gold. These were considered, however, too toxic to warrant general use.

From the data that have accumulated concerning the attempts to obtain and demonstrate a chemotherapeutic agent that would combat tuberculous infections successfully, it is evident that the quest has been largely disappointing. Under the circumstances, announcement of results that indicate that a chemotherapeutic substance has been found that is capable in many instances of combating experimental tuberculosis successfully should be viewed with skepticism and the data subjected to a critical analysis. Until the facts in support of apparently favorable results are established firmly by repetition of the original experiment and are confirmed by independent workers, it is wise to maintain a conservative attitude concerning chemical substances said to have thera-

peutic value in tuberculosis. Investigators who are concerned primarily with facts and not fantasies will welcome criticisms and a challenging attitude by those motivated by a sincere interest in distinguishing the true from the false. It is in this spirit that Dr. Hinshaw and I have announced from time to time the results of our work with the chemotherapy of tuberculosis.^{5, 6, 7, 8, 9, 13} We have been cautious about making specific claims, feeling that facts are easier to demonstrate than claims are to defend.

Before discussing the problem of treating tuberculosis by specific chemical substances, it might be profitable to provide a definition of chemotherapy. The term has been used rather loosely by some and apparently has meant different things to different authors. In a general sense treatment of a disease by a drug or chemical is chemotherapy. However, through the years there has been a tendency to limit the term chemotherapy to the specific treatment by drugs which act on the infective agent without seriously affecting the tissues of the host. Kolmer and Tuft defined chemotherapy as "the prevention and treatment of an infectious disease by specific chemical agents without marked or serious toxic effects" on the patient. This is an acceptable modern concept of the term and is more applicable to reality than the original concept of Ehrlich in which chemotherapy meant literally the disinfection of the infected body by a single dose of a specific chemical agent.

Practical Consideration of the Problem

There exist certain practical obstacles that confront the investigator desirous of initiating a comprehensive study of chemotherapy of experimental tuberculosis. There must be available proper physical equipment, adequate funds and intelligent and enthusiastic assistance if a satisfactory program is to be evolved. The project must be undertaken with the knowledge that it cannot be finished in a week, a month or even a year.

Up to the present time we do not know of any short cuts whereby the efficiency of a chemotherapeutic agent intended to combat a tuberculous infection can be determined definitely. It is true that tests *in vitro* can be and sometimes are used to determine the effects of a chemical substance on tubercle bacilli. While this method is not without merit and perhaps capable of a wider application, it is, we feel, inferior to the animal test in

which animals actually affected with tuberculosis are subjected to treatment. While the latter procedure is time-consuming and relatively expensive, it will provide information that can be obtained in no other way. It should be evident that conditions *in vitro* can never be other than artificial and that complicated organic compounds such as constitute most chemotherapeutic agents are likely to act and be acted on quite differently in an artificial medium than when in contact with the natural fluids and tissues of a living organism. In this connection it might be apropos to draw attention to the view that antibacterial substances such as the sulfonamides operate by depriving the bacteria of certain essential accessory food factors or metabolites which have been likened to vitamins and of which para-aminobenzoic acid is one example.

Additional knowledge of the synthesis necessary for bacterial growth may suggest eventually a procedure whereby the worth of a chemotherapeutic agent in tuberculous infection may be determined by tests *in vitro* rather than by procedures *in vivo*. The need for an accurate, simple test that can be completed within a few days at the most and in which the results can be interpreted in terms of the test *in vivo* is apparent to all who are concerned with the problem of chemotherapy as it pertains to tuberculosis.

In most other infections the value of chemotherapy has been determined relatively quickly by the use of the mouse. Biologically, however, this animal is unsuited for work involving human tubercle bacilli. The animal of choice continues to be the guinea pig. The marked susceptibility of guinea pigs to experimentally induced tuberculosis provides a circumstance of considerable importance in testing chemotherapeutic substances. If one is fortunate in establishing a proper balance between the dose and virulence of the bacilli and the susceptibility of the animals to be used it is possible to initiate a slowly and definitely progressive tuberculous disease that is not reversible. At least in our experience we have never encountered what we considered spontaneously resolved or cured tuberculosis in the guinea pig. If an animal of such marked susceptibility as the guinea pig becomes tuberculous as a consequence of experimental procedures and subsequently is apparently freed of the infection as a result of a definite therapeutic agent, the results should be significant.

Tuberculosis, whether naturally acquired or experimentally induced, differs greatly from most infections that have been found to be amenable to a chemotherapeutic attack. In tuberculosis the problem is not that of simple septicemia or an acute inflammatory process but is instead an elaborate pathologic complex consisting of bacteria of considerable tenacity, harbored within the protection of a morbid structure that is frequently extensive and of long standing.

It has been generally believed that successful chemotherapy is especially difficult in tuberculosis because of factors that are characteristic and inherent to the disease. These factors include the alleged impermeability of the morbid structure due to the avascularity of the tuberculous lesion and the high resistance of the protoplasm of the tubercle bacillus to penetration by chemical substances. These features, which have been discussed at some length by Wells and Long¹⁹ and by others, do not provide, in my opinion, an adequate explanation for previous failures to demonstrate in tuberculosis the successful chemotherapy that has been and is being accomplished with certain other infective diseases. Under natural and experimental conditions we know that tuberculous lesions, in spite of their avascularity, are penetrated by substances such as calcium and, as Wells and Hedenburg¹⁸ showed experimentally, by potassium iodide. By the use of intravital dyes it has also been demonstrated that tuberculous lesions are permeable.

The difficulty of the problem is not that of the permeability of the lesion but of providing a substance that, while not unduly toxic to the normal tissues, will be able to reach all parts of the morbid structures in a form that will kill the bacilli by selective bactericidal action, or will have a neutralizing effect on the products of the bacilli or will promote a stimulation of the reticulo-endothelial elements that are concerned with the cellular immunologic mechanism of defense. Should a chemical compound be developed which when given with therapeutic intent to a tuberculous animal achieves a desirable therapeutic effect, the exact mechanism by which the effect actually would be accomplished is likely to be obscure.^{11*} The possibilities for complex biochemical reactions between the substance when it enters the body and the histiocytic and related elements of the tuberculous focus are infinite

*Possibilities as to the manner in which antibacterial substances function have been discussed by Fildes.¹¹

and unpredictable. In considering chemotherapy one should keep in mind that the substance finally operative against the tubercle bacillus or against the morbid process generally is likely to be chemically quite dissimilar to the substance as it was introduced into the body.

Important Factors in the Critical Evaluation of a Chemotherapeutic Agent

From our limited experience in the field of chemotherapy we have become aware of the necessity of recognizing certain factors that we believe are important in the critical evaluation of a chemotherapeutic agent intended to combat experimentally induced tuberculosis. These factors are as follows:

1. *The virulence of the bacteria used to establish the infection.*—This, we believe, is one of the most important factors. Since the virulence of different strains of tubercle bacilli is subject to marked variation and since the virulence of the same strain is likewise unstable or at least unpredictable, an understanding of the factors that control or influence virulence of tubercle bacilli is essential. In most of our work we have preferred to use a strain of tubercle bacilli (H37RV)[†] whose history and biologic characteristics have been established by a prolonged period of observation and by an extensive investigation of its biophysical characteristics.¹⁵ This strain, which we obtained originally from Dr. Arthur J. Vorwald of Saranac Lake, New York, has retained to date the virulence it possessed when it came into our possession in 1940. We have continued its cultivation by subculturing monthly on the synthetic medium of Proskauer and Beck.

A strain of tubercle bacilli of satisfactory virulence is one that when injected into guinea pigs in medium to small doses will produce typical progressive and uniformly fatal experimental tuberculosis. The appearance of inconsistencies in the results in the control animals should invalidate what otherwise might appear as significant results. Incidentally, accumulated experience indicates that in chemotherapy there exists no correlation between the virulence of the parasite and its resistance to chemical agents.

2. *Relation of duration of infection to beginning of therapy.*—Theoretically at least it should

be less difficult to impede the progress of a tuberculous infection if the deterrent agent is present before or very soon after the animals are inoculated with tubercle bacilli than would be true if treatment is delayed until anatomic signs of the disease are definitely present. In other words we should be more concerned with the effect that a chemotherapeutic substance may have on a tuberculous infection already established than with the ability of the substance to exert a prophylactic action. From information obtained from our experimental studies Dr. Hinshaw and I more or less arbitrarily have considered six weeks as the minimal duration that an experimental tuberculous infection must have existed before therapy is started. If guinea pigs are inoculated subcutaneously with relatively small doses of human tubercle bacilli of standard virulence, there will be present in the majority at the end of six weeks small multiple focal lesions of tuberculosis. The lesions will be most common in the spleen and less frequent in the lungs and liver. The lesions at this time are usually actively progressive. Histiocytic and epithelioid cells predominate and necrosis is the exception rather than the rule. We have at this stage of the infection a definite and characteristic disease whose pathologic characteristics are those of a process that is advancing and may be expected to continue its destructive course with spontaneous resolution extremely unlikely.

Since the results of our work with "promin" have indicated that this drug is capable of exerting a favorable deterrent effect on tuberculous infections established in guinea pigs six weeks before treatment begins, we have adhered to this practice in all subsequent studies. It has been demonstrated repeatedly in our work that we possess in "promin" a drug capable of influencing favorably a tuberculous infection in guinea pigs that had existed six weeks before treatment was started. Therefore it seems reasonable to insist that in the future untried drugs be subjected to the same experimental condition. It appears that unless a chemotherapeutic substance can act effectively against an experimental tuberculous process that is morphologically recognizable when therapy is started the possibilities for the clinical use of such a drug are unimpressive.

3. *Evidence that each animal to be treated was actually and unquestionably harboring a tu-*

[†]A detailed account of the biologic characters of H37RV will be found in the report by Oatway and Steenken.¹⁵

berculous infection before treatment began.—This can be determined by: (1) the tuberculin test; and (2) histologic or other examination of tissue obtained at biopsy, six weeks after inoculation with tubercle bacilli.

4. *Evidence of beneficial effects as a consequence of the therapeutic agent.*—The treated animals as a group should live longer than those not treated, but of more importance than the survival time will be the influence, if any, that the drug has had in altering the expected dissemination of the disease, the amount and severity of the morbid process and the histologic character of the cellular elements constituting the tuberculous reaction.

5. *Permanence of therapeutic effect.*—It should be recognized that the therapeutic effect of a drug may be relative rather than absolute. The drug may act as a bacteriostatic agent preventing the multiplication of the bacteria but without the ability to kill the organisms. Again the compound may exert what Corper, Cohn and Bower³ designated as "organic toxic" or "leukotoxic" effects in which there is a suppression by the drug of the parent cells which give rise to the monuclear histiocytic forms that constitute the cellular response to infection with tubercle bacilli. This would result, according to Corper, Cohn and Bower, in an apparent rather than a real retardation of the tuberculous infection. Although tubercles may not form, the tubercle bacilli remain viable and capable of subsequent mischief.

When the therapeutic agent is withheld until the disease has become sufficiently well established to enable tubercles to form, we have present a hyperplastic rather than an aplastic structure. If such lesions regress or eventually disappear during chemotherapy, it seems probable that the drug has had a direct effect on the infection.

To establish definitely that the favorable effect on an experimental tuberculous disease is permanent rather than temporary is not an easy task. The problem may be approached by: (1) culturing for tubercle bacilli or by inoculating into other guinea pigs, material prepared from the principal organs of predilection from animals that have been treated and are without recognizable tuberculous lesions at the time of necropsy; or (2) treatment of animals that have been receiving a given compound for a long period may

be discontinued and the animals continued under observation indefinitely to determine if a residual infection that was latent when treatment was stopped will become manifest as a progressive and fatal disease. This latter procedure conceivably could give rise to false conclusions. Unless the animals are placed in a nontuberculous environment when chemotherapy is stopped, it may be difficult to determine with certainty that lesions of tuberculosis that may be observed months later at necropsy are not the result of an exogenous reinfection rather than the manifestation of an endogenous infection that successfully resisted the action of the therapeutic agent.

6. *Recognition of the possibility that different strains of tubercle bacilli may reveal important variations in their resistance or susceptibility to chemotherapeutic agents.*—Since chemotherapy in tuberculosis has been for the most part unsatisfactory and unpromising, precise information regarding the resistance or susceptibility to chemical substances of a representative number of different strains of tubercle bacilli is not available. Even though a compound is found that is effective in combating experimental tuberculosis induced by a specific strain of the tubercle bacillus, it would be injudicious to claim that the drug would be equally effective against all strains of the organism.

7. *Confirmation of results by others.*—If the results are to be accepted with confidence, it is important that the original observations be confirmed by independent workers. Many factors enter here to make this condition frequently difficult of achievement. If one undertakes to confirm another's work, it seems important that the original experiment be duplicated in all essential details. If the original procedure is not followed, the deviation should be stated. While acceptance of these basic principles in theory is practically universal, rare indeed is the instance in which a critical confirmatory experiment is carried out by duplicating every detail of the original work. If the results confirm the original observations, the procedure followed is perhaps of secondary importance, but if the results are contrary to those of the original study, it is not proper to claim that the original data could not be confirmed unless the original experiment was actually duplicated.

Original Observations

Our interest in chemotherapy of experimental tuberculosis had its beginning about the time the report of the work of Reid and Follis with sulfanilamide was published. Dr. Hinshaw had obtained for clinical investigation a quantity of sulfapyridine which he was using in the treatment of pneumonia. The fact that this drug appeared to have a wider antibacterial activity than was originally supposed suggested to us the desirability of testing it against an experimental tuberculous infection.

Incidentally, the importance of the work of Reid and Follis with sulfanilamide should, I believe, be emphasized. While they were properly conservative in their conclusions, the fact remains that their experiment showed that the development of tuberculosis in the guinea pig is definitely inhibited by sulfanilamide. Their data indicated clearly that an adequate dosage of the drug is an essential factor in the results obtained and that unsatisfactory or negative results will follow the use of an inadequate dosage. After the published announcement of Reid and Follis' work a number of reports were published by workers who attempted to confirm Reid and Follis' observations. While a few obtained results quite comparable to those of Reid and Follis, several did not and it is well to note that those who failed to confirm the original results failed to observe certain important factors that were clearly apparent in the report of Reid and Follis. These factors were adequate dosage and administration at intervals throughout the day to maintain an effective concentration in the blood and continuation of the treatment for the duration of the experiment.

Dr. Hinshaw and I believe that the work of Reid and Follis is of considerable importance because of the soundness of their experimental method and because their results indicated that tuberculosis even in the highly susceptible guinea pig could be inhibited in its expected course by a chemotherapeutic agent.* Their results provided reasons for believing that tuberculosis, one of the most drug-resistant of all infectious diseases, may yield eventually to a specific chemical substance. We still believe this is possible of achievement.

During the three or more years that we have been exploring the possibilities of chemotherapy as a means of combating experimental tuberculous infections, we have assembled sufficient data on nine different compounds to indicate which are of no value and which merit further investigation. The total number of compounds studied is not large and is only mentioned to emphasize the amount of time and energy necessary actually to test substances that theoretically may appear promising.

The different experiments which have been completed to date will now be described briefly.

Study 1.—Our first study was concerned with sulfapyridine. Two groups of guinea pigs, each consisting of twenty animals, were used. All the guinea pigs received subcutaneously over the sternum 0.0001 mg. of a recently isolated strain of tubercle bacilli, human type. For three days prior to inoculation with tubercle bacilli and for seven days after inoculation each of the animals in group 1 received twice daily by mouth 250 mg. of sulfapyridine.* After ten days the dose of sulfapyridine was reduced to 125 mg. given twice daily. Group 2 received tubercle bacilli only. After twenty-one days, when a guinea pig in one group died, an animal in the other group was killed for the purpose of comparison. The experiment was continued for fifty-six days after the injection of tubercle bacilli, when the animals that were living were killed for necropsy.

Twelve of the animals that received sulfapyridine lived three weeks or more. In the control group, four animals died during the last five weeks of the experiment; seven were killed during the same period for comparison with seven animals receiving sulfapyridine that died during this period. Nine were killed when the experiment was terminated. Subsequent studies revealed that tuberculosis had become definitely established in one or more situations in all the treated guinea pigs that lived longer than twenty-one days. Furthermore, the general situation indicated that these animals might have been expected to die eventually of the disease had the experiment been continued indefinitely. However, appreciable differences did exist in the character of the disease in the two groups of animals. These differences, it seems reasonable to pre-

*In a later report Follis and Reid presented evidence indicating that in tuberculous rabbits sulfanilamide in adequate dosage, properly administered, has a definite inhibitory effect on the development of the disease.

*The sulfapyridine was kindly supplied by Dr. D. F. Robertson, Associate Medical Director, Merck and Company, Rahway, New Jersey.

sume, were due to the effect of sulfapyridine. For reasons that appear to be inexplicable, the differences in the character of the lesions were most striking in the axillary lymph nodes contiguous to the site where the tubercle bacilli had been introduced and in the spleen. In those animals that did not receive sulfapyridine, the amount and character of the tuberculous changes in these tissues were severe and well marked, with caseation a prominent feature. By all criteria, there was present a progressive, destructive tuberculous infection that was unaccompanied by recognizable evidence of restraint.

These changes were in sharp contrast to the pathologic picture in the spleens and axillary lymph nodes of the animals that received sulfapyridine. With few exceptions there was present in such animals impressive and significant evidence that some inhibitory mechanism had been operative, with measurable success. The failure of the infection to be demonstrably present in the axillary lymph nodes of all but two of the treated animals seems important, as does the character of the disease in the spleens of all but one of the animals that received the drug. The failure of all the spleens but one to become hyperplastic is certainly contrary to what happened in the spleens of the animals that were not treated. Microscopically the lesions in most of the spleens from the treated animals were definitely those of tuberculosis that was unlike that in the controls. The tubercles were usually discrete epithelioid structures with necrosis absent or of minimal proportions. The tendency of the tubercles to remain for the most part within the confines of the splenic corpuscles is a significant feature that did not occur in the spleens from the untreated animals. Generally speaking, the inhibitory effects we observed were comparable to those produced with sulfanilamide as reported by Rich and Follis.

From the data obtained in this study we concluded as follows:

1. Sulfapyridine exerted a definite modification and retardation of the expected course and character of the disease in the animals receiving the drug.
2. The effects of the drug were most noticeable in the character and extent of the disease in the spleen and axillary lymph nodes.
3. Although certain desirable modifications in the character of the tuberculosis occurred in

most of the guinea pigs that were treated, the results did not imply that sulfapyridine would be of value in the clinical treatment of tuberculosis.

Soon after we had completed our work with sulfapyridine, two additional compounds intended primarily for use in the treatment of a variety of nonmycobacterial diseases became available for investigational purposes. One of these was sulfathiazole and the other was designated by the manufacturer as "promin."

Our experience in administering to guinea pigs sulfapyridine orally twice daily for approximately eight weeks was sufficient to emphasize how laborious and time-consuming this procedure could be. Consequently, when the manner in which sulfathiazole and promin were to be given was considered, two other methods were tried. The instructions from the manufacturer were that promin should be given parenterally and this we tried to do. However, it soon became apparent that the parenteral administration of promin to guinea pigs was not satisfactory. We next tried giving the drugs mixed with the feed. This method proved convenient and satisfactory for both drugs. It not only presents a minimum of difficulties but has the important virtue of providing a more or less continuous intake of the drug during each twenty-four hours.*

Study 2.—The chemotherapeutic efficacy of sulfathiazole for experimental tuberculosis was determined by mixing 1 per cent by weight of the drug in the feed of thirty guinea pigs. Two days after administration of the drug was started, the thirty animals just mentioned and twenty controls were inoculated subcutaneously with 0.0005 mg. of the virulent variant of H37 designated by Oatway and Steenken as H37RV. All the untreated controls were dead eighty-two days after the experiment began. During this period twenty-one, or 70 per cent, of the treated animals also had died. Four additional animals in the treated group died during the next three days. The five remaining guinea pigs in the group that were receiving sulfathiazole continued to receive the drug daily until the experiment was terminated 164 days after inoculation.

This was not an entirely satisfactory experiment owing to the fact that many of the animals

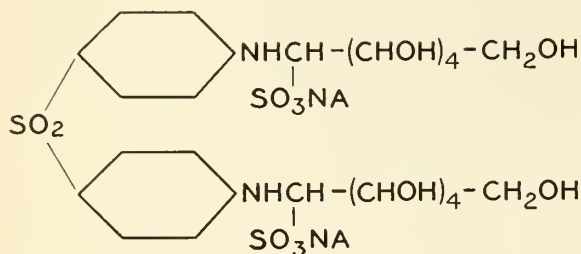
*Incidentally it appears that promin is far more effective against an experimental tuberculous infection when given orally than when given parenterally.

in the treated as well as in the untreated group died as a consequence of a severe nutritional disturbance. The findings at necropsy indicated that there was little if any difference in the amount

diaminodiphenylsulfone-N,N'-didextrose sulfonate. From the structural formula shown in Figure 1 the relationship of this drug to 4,4'-diaminodiphenylsulfone is apparent. Although 4,4'-diaminodiphenylsulfone is a highly effective chemotherapeutic agent, its marked toxicity has limited its clinical application. In promin the addition of the glucose radicals and of the sodium sulfonate groupings increases the solubility of the drug and presumably decreases its toxicity and perhaps its therapeutic efficacy.

Our first experiment to determine the effect of this compound on tuberculosis experimentally induced can be described briefly as follows: Fifty adult male guinea pigs were divided into two groups. One group consisted of thirty animals; these were to receive promin mixed with the feed to the amount of 1 per cent of weight.* The remaining twenty animals constituted the untreated or control group. After the thirty animals in the first group had been receiving the drug for two days, all the animals in this group and each of the twenty guinea pigs in the second group were inoculated subcutaneously with 0.0005 mg. of a recently prepared subculture of H37RV. The animals in the treated group continued to receive promin in their diet daily for eighty-two days or until all the animals in the control group had died.

As mentioned before, study 2 and study 3 were made concurrently. Consequently the same inadvertent nutritional disturbance that complicated the interpretation of the results with sulfathiazole was also operative in the animals that received promin. Yet in spite of what appeared to be premature deaths among the animals in the treated as well as in the control groups, the results indicated quite clearly that promin had had a deterrent effect on the expected course of the disease. When the last of the controls died eighty-two days after being inoculated with tubercle bacilli, 83 per cent of the animals that had received promin were living. At this time promin was removed from the diet of twelve of the twenty-four survivors while administration of the drug was continued in the diet of the remaining twelve. The experiment was terminated eighty-two days later at which time thirteen animals were living, eight of which had not received promin during the last eighty-two days of life.



Sodium p,p'-diaminodiphenylsulfone-N,N'-didextrose sulfonate ("promin")

Fig. 1. Structural formula of sodium p,p'-diaminodiphenylsulfone-N,N'-didextrose sulfonate ("promin").

and character of tuberculosis in the animals constituting the two groups. Although the nutritional disturbance was the immediate cause of death of many animals in both groups, it also happened that many other animals in both groups died as a consequence of their tuberculosis. The fact that five of the treated animals were living and continuing to receive the drug for eighty-two days after the controls had died perhaps suggests that the treatment had the effect of delaying in these animals what inevitably would have been death from tuberculosis. Each of the five animals was moderately to severely tuberculous after having received sulfathiazole for a total of 164 days. The results of this experiment indicated quite definitely that any effect this compound may have had on the course of the tuberculous infection was insignificant and that further trial of the drug in the chemotherapy of tuberculosis would be unwarranted.

Study 3.—Study 2 and study 3 were conducted concurrently. We were thus able to utilize the same group of controls for both experiments. This practice, which we have followed in subsequent work, not only effects an economy when more than one chemotherapeutic substance is to be tested; it also provides a common control factor that is important when comparative studies are being made.

Promin, which Dr. Hinshaw had been using with fairly satisfactory results in treating pneumonia, is known chemically as sodium p,p'-

*The promin we have utilized in our experimental studies was supplied through the courtesy of Dr. E. A. Sharp, Parke, Davis and Company, Detroit, Michigan.

Although lesions of progressive tuberculosis were present in the organs of predilection of all the animals of the control group, the degree of tuberculous involvement in the animals that received promin was notably less than in the control group. Fewer situations were affected and the lesions were fewer and smaller than was true in the guinea pigs that were untreated. Furthermore, in the spleen, liver and lungs of approximately 52 per cent of the treated animals cellular reactions that could be considered tuberculous were not found either grossly or microscopically.

During the course of this experiment an effort was made to determine whether or not spleens which appeared not to contain any lesions were actually free of virulent tubercle bacilli. Each of seventeen spleens of animals that had been treated with promin was divided and a portion emulsified for inoculation into two additional guinea pigs. Of the seventeen spleens, nine were found to contain viable tubercle bacilli and eight did not. Viable tubercle bacilli were demonstrated in all but one of the five spleens in which lesions of tuberculosis were present and positive results were obtained from five spleens in which lesions of the disease were not found. Lesions of tuberculosis were found in the spleen of only one of the five guinea pigs that had received promin for the entire period of observation—164 days—and three of the five spleens in which lesions were found were from animals that had received the drug for eighty-two days only. These observations make it evident that tubercle bacilli may persist in the apparently nontuberculous splenic tissues of animals that have received promin for as long as 164 days and be capable of inducing lesions of tuberculosis in untreated guinea pigs although the bacilli presumably were unable to do so in animals receiving promin. That many of the spleens were free of virulent tubercle bacilli, presumably as a consequence of the promin, was likewise established. It is also evident that tubercle bacilli may remain latent in tissues of guinea pigs long after treatment has been discontinued. This suggests the possibility that immunity developed in these animals, since subinoculation proved the virulence of the dormant organisms.

The information obtained in this experiment provided sufficient reasons for concluding that promin under the conditions imposed had a measurable chemotherapeutic effect on a tubercu-

lous infection induced in a highly susceptible animal with a strain of human tubercle bacilli of known virulence. The longer survival time of the treated animals, the lesser amount of actual disease present and the nonprogressive nature of the lesions in the animals that received promin constitute reasonably convincing evidence in support of the foregoing conclusions.

Study 4.—The results obtained in study 3 indicated that in the treatment of experimental tuberculosis promin had therapeutic properties greatly in excess of any other compound with which we were familiar. That our observations with this substance should be extended was of course obvious. Consequently another experiment was undertaken. It had as its objectives the following: (1) to confirm if possible the observation that, when administration of promin is begun shortly before inoculation with tubercle bacilli, the drug will retard and in some instances prevent the development of tuberculosis; (2) to determine if promin might have a therapeutic effect on a tuberculous infection definitely established before treatment with promin was begun.

In study 4 the infective agent, the diet, and the dosage and administration of promin were the same as obtained in study 3. Eighty guinea pigs were used. Twelve did not receive promin and forty-eight of the remaining animals were divided into six groups of eight animals each. In these six groups administration of promin in relation to the time of infection was as follows: day of infection, three days after, one week after, two weeks after, four weeks after and six weeks after. In twenty animals the administration of promin was started, as in study 3, two days before the animals were injected with tubercle bacilli. At the expiration of six months all the untreated animals were dead, presumably as a result of the severe and widely disseminated tuberculous infection, while only eleven, or 16 per cent, of the treated animals had died during this period. Fifty-seven, or 84 per cent, of the treated animals survived. Among the sixty-eight animals that had received promin, demonstrable lesions of tuberculosis were absent in the liver, spleen and lungs of thirty-nine, or 57 per cent, while no lesions were found in the visceral organs of predilection, at the site of injection or in the contiguous lymph nodes in twenty-nine, or 43 per cent, of the treated animals. In view of the

longer survival time of the treated animals and the fact that the animals that received promin had less demonstrable tuberculous disease and that the disease was usually static or regressive, it was concluded that under the conditions of the experiments described in studies 3 and 4, promin had a deterrent effect on an experimental tuberculous infection.*

Study 5.—The tendency of promin to produce hemolytic anemia is one of the important factors that must be reckoned with in its clinical application. Although promin is fairly well tolerated by guinea pigs even after prolonged and continuous administration, it was recognized early in our work that this drug, like most other chemotherapeutic substances, is a poison and as such is potentially dangerous. The severity of the hematologic changes in guinea pigs produced by promin is generally speaking less than may be expected in adult human beings. Fortunately the changes in the blood induced by promin have not been irreversible in our experience. When administration of the drug is stopped, the hemopoietic response is soon adequate for normal physiologic demands.

To reduce or perhaps avoid the undesirable blood changes that are likely to occur, especially in human beings subjected to prolonged and more or less continuous therapy with promin, intermittent administration of the drug was suggested. To provide information regarding the relative efficacy of promin given intermittently to combat a tuberculous infection the following animal experiment was carried out. The animals consisted of fifty-one guinea pigs, all of which were inoculated subcutaneously with 0.0005 mg. of a recent subculture of the virulent variant of H37 (H37RV). At the end of forty-two days all the animals were found to be sensitized to tuberculin, injected intracutaneously. The fifty-one animals were divided at this time into two groups, one group consisting of twenty animals that were to receive treatment with promin intermittently and the other group of thirty-one animals that were to remain untreated for control purposes. The schedule of treatment for the animals in the first group provided that the drug should be given for seven days every alternate week. In other words, a week of treatment

was to be followed by a week during which no drug was given. As in previous experiments, the drug was incorporated with the feed to the amount of 1 per cent by weight. The experiment continued until all the animals in the control group were dead. This occurred 224 days after the animals had been inoculated with tubercle bacilli. Five days later the surviving animals that had been receiving promin every alternate week were killed.

When the experiment was terminated 229 days after the animals had been inoculated with tubercle bacilli, the thirty-one guinea pigs in the untreated group were all dead while twelve, or 60 per cent, of the animals that had been treated were still living. Of the eight guinea pigs in the treated group that had died, two had received promin for one week only and they died as a consequence of severe and extensive tuberculosis. The longest any of the treated animals that died had received promin was fifty-five days. Those that survived and were killed after 229 days had received a total of ninety-four days of treatment. This represents approximately thirteen alternate weeks.

That the administration of promin had influenced the morbid expectancy of the animals in the treated group markedly was clearly apparent when a comparison was made of the amount of tuberculosis in the treated and in the untreated groups. This difference could be expressed numerically when the amount and character of tuberculosis found microscopically in each animal were determined.* The average numerical index of infection for the thirty-one animals in the control group was found to be 8.7 while the average for the twenty animals that received promin every alternate week was 3.8. In another experiment (study 6) in which the infected animals received promin daily starting with the forty-second day after inoculation with tubercle bacilli, the average numerical index of infection was 2.5. Thus it becomes evident that in combating experimental tuberculous infections in the guinea pig, promin given daily continuously has a greater efficacy than when given daily every alternate week. Whether or not the toxicity

*The scheme we follow for determining the numerical index of tuberculous infection in guinea pigs is based on the arbitrary acceptance of the figure 10 as representing the maximal severity of the disease possible for a given animal. Tuberculosis of the spleen, lungs and liver respectively is graded 1 to 3 depending on whether the character of the disease is minimal, moderate or severe. If lesions are present in the region of inoculation even though lymph nodes may or may not be involved, the index of infection for this region is considered as 1.

*A detailed account of the procedures followed and of the results obtained in studies 3 and 4 will be found in the paper by Feldman, Hinshaw and Moses.⁹

of the drug for guinea pigs was less by the intermittent than by the continuous method of treatment we are unable to say, since no studies directed toward this feature of the experiment were carried out.

In this experiment it might be well to recall (1) that forty-two days had elapsed after the animals to be treated had been inoculated with tubercle bacilli, (2) that two of the animals died of extensive tuberculosis after receiving treatment for only seven days (this is indicative of the virulence of the infection) and (3) that the drug was given, not continuously but intermittently, with seven-day intervals between courses of treatment. That promin was capable, under these conditions, of exerting a therapeutic effect seems worthy of special emphasis.

Study 6.—The evidence we had obtained from the previously described experiments indicated that (1) promin was capable of extending the survival time of the animals that were treated; (2) when treatment was started before or soon after the infection was introduced, the drug in many instances seemed to prevent the establishment of morbid changes characteristic of an experimental tuberculous infection, and (3) in instances in which the infective agent was introduced as long as six weeks before treatment was started, the anatomic character of the disease was altered markedly or recognizable signs of the disease were missing when the animals were examined at necropsy. The evidence that led to these conclusions was based largely on a comparison of the results obtained in the treated animals with the results obtained with the untreated controls. In order that more impressive morphologic evidence might be assembled which would provide reasonable proof as to whether or not a deterrent effect had been exerted on a tuberculous process that was demonstrably present before treatment began, the following experiment was done.

A total of fifty-one guinea pigs was inoculated subcutaneously with tubercle bacilli, strain H37-RV. At the forty-second day when all were found to be sensitized to tuberculin intradermally administered, the animals were divided into two groups. Group 1 consisted of thirty-one animals. These were not treated and were con-

sidered as controls.* Group 2 consisted of twenty animals and starting with the forty-second day each animal in this group received daily with its feed approximately 300 mg. of promin. One week later laparotomy was performed on all the animals in group 2 and on twelve animals in group 1.† This was for the purpose of obtaining for microscopic study specimens for biopsy of the livers of the respective animals. Five animals died as a consequence of laparotomy, one in the control group and four in the group that was being treated.

As a consequence of the observations at biopsy it was determined definitely that tuberculosis was present in the livers of both treated and untreated animals at the time treatment was begun. These findings were compared eventually with the findings obtained from a study of the tissues secured at necropsy. The experiment continued until the last of the animals in the control group had died. This occurred 224 days after infection. At that time only three, or 19 per cent, of the treated animals that had survived laparotomy were dead.

The results of this study quite definitely confirm our previous observations that promin is capable of exerting a definite therapeutic influence on previously established experimental tuberculosis. The procedure followed provided morphologic evidence that in most instances tuberculous lesions present when treatment began resolved or became atrophic or regressive under the influence of the therapeutic agent.

This study strengthens rather than weakens confidence in the ordinary control methods of animal experimentation. The data obtained are entirely consistent with those secured in other experiments in which biopsies were not done. However, the procedure followed in this study makes it possible to know with certainty that lesions of tuberculosis were actually present during at least the early phases of the treatment. How much time was required for lesions to resolve in those animals that were without recognizable lesions when the animals were killed after receiving treatment for 184 days is not known.

The difference in the mortality rate and in the amount and character of the tuberculous disease present in the two groups of animals indicates

*This experiment was conducted concurrently with study 5. Consequently the same group of controls sufficed for this and certain other experiments.

†The surgical procedures required in this experiment were performed by Dr. F. C. Mann.

that a factor was operative in the treated group that was not operative in the group that was not treated. One can conclude only that the deterrent factor was supplied by the drug that had been given with therapeutic intent.*

Failures with promin.—Up to the time of writing we have treated, by the continuous daily administration of promin, 118 tuberculous guinea pigs. This total includes animals whose treatment began before the animals were inoculated and those whose treatment was delayed for as long as six weeks after the animals had been infected.† Although definite lesions of tuberculosis were present at necropsy in a considerable percentage of these animals, in only two instances did the amount and character of the tuberculosis present indicate that the drug had been without any therapeutic effect.

In one of the animals the treatment appeared to have aggravated the severity of the disease. This animal died 133 days after being inoculated subcutaneously with 0.0005 mg. of H37RV and had received promin daily with the feed during the entire period. At necropsy the amount of disease present in this animal was most impressive. There were a massive involvement of the spleen and a striking tuberculous pneumonia. The presence in the mononuclear cells of the liver and spleen of large numbers of acid-fast bacillary forms was indicative of hematogenous tuberculosis. As a matter of fact, the most striking feature of the tissues from this animal was the amazing number of acid-fast bacillary forms present, especially in the lung.

The second instance in which promin failed to exert any appreciable deterrent effect was encountered in study 6. The animal had received the usual dose of H37RV subcutaneously and forty-two days later the daily administration of promin was started. The treatment continued without interruption until the animal died 223 days after infection. Promin had been given for a total of 181 days. At necropsy, there were tuberculous lesions in the subcutis at the site of injection, the axillary lymph nodes were involved, the lungs, spleen and liver were affected extensively and there was hydrothorax. The amount and severity of the tuberculosis in this guinea

pig were equal to those observed in any of the control animals.

Why promin failed to influence the outcome of the disease favorably in these two instances is inexplicable.

Efficacy of promin against strains of tubercle bacilli other than H37RV.—Although we recognize the importance of knowing whether or not promin will be as effective against experimental infections established by other strains of mammalian tubercle bacilli as against H37RV, we have up to the time of writing but little information concerning this question. We have preferred to utilize most of our facilities with other phases of the problem. We have believed that it was first necessary to establish acceptable proof that chemotherapy could be and had been accomplished against an experimental tuberculous infection which without successful treatment would become inevitably a severe, extensive and fatal disease.

We have in progress at the present time an uncompleted experiment in which a relatively small number of guinea pigs was inoculated with a recently isolated "sputum" strain of tubercle bacilli. At the time of writing it is nearly seven months since the animals were inoculated and nine of the ten animals in the untreated or control group are dead. The amount of tuberculosis in the animals dead in the control group varied from moderate to severe but appeared sufficient in every instance to account for the death of the affected guinea pig. Of the nine animals in which daily treatment with promin was started forty-two days after infection, only two have died. Although on the basis of survival time it would appear that promin has been effective in opposing a tuberculous infection that has succeeded during the same period of time in killing all but one of the untreated animals, final conclusions must await the results of the examinations at necropsy of the survivors.

Final Considerations

In closing we should outline briefly what our studies actually have established and what the significance of certain of the findings may be.

1. The necropsy records and the histologic sections that have been prepared (and preserved) from every animal utilized in these experiments provide convincing morphologic evidence that the

*A more detailed description of this experiment will be found in the paper by Feldman, Mann and Hinshaw.¹⁰

†The group of twenty tuberculous guinea pigs (study 5) that were treated with promin daily every alternate week is excluded.

tubercle bacilli used to infect the guinea pigs which were subjected to chemotherapy were definitely and satisfactorily pathogenic. After inoculation even of relatively small doses, guinea pigs became sensitized to tuberculin and moderate to severe tuberculosis was present at the time of death in all the animals in the various untreated groups. The facts obtained from the animals in the control or untreated groups as well as from those groups that were treated with compounds that proved noneffective provide proof that the infecting bacteria we have used have been consistently and indisputably pathogenic.

2. Comparative studies have shown that of the various compounds tested promin is the most effective in combating an experimentally induced tuberculosis. That many of the compounds studied proved to be without recognizable therapeutic effect serves to emphasize the greater efficacy of promin.

3. It has been demonstrated repeatedly that, although the infection existed for six weeks before chemotherapy was started and although morbid changes characteristic of tuberculosis were actually present when therapy began, promin was capable of striking and unusual therapeutic effects. The vast majority of the treated animals lived longer than the controls. Many animals were apparently rid of all recognizable signs of the disease that had been seen in specimens for biopsy obtained when treatment began. When present after treatment, the amount and character of the disease were in most instances significantly unlike those present in the untreated controls. In the former the morbid changes were rather simple and usually were regressive or static rather than progressive and destructive such as characterized the lesions in the untreated controls.

4. From the facts that have accumulated regarding the ability of promin in most instances to cope successfully with an established, progressive and potentially fatal tuberculosis in the highly susceptible guinea pig, it would appear that the clinical trial of this drug is justified. Writing in 1932, Wells and Long mentioned the difficulty of combating tuberculosis successfully in the guinea pig and stated: "We may feel quite sure that a drug which cures the disease in the guinea pig, or even influences it favorably, would more certainly be beneficial in the much less susceptible human being."

The word "cure" should be used with reservations in regard to the chemotherapy of tuberculosis, since it is extremely difficult to establish with certainty that a "cure" has been accomplished. It is, however, less difficult to recognize whether or not the disease has been influenced favorably or its course arrested as a consequence of a therapeutic procedure. In our studies a considerable number of promin treated guinea pigs that were known definitely to have had lesions of tuberculosis when treatment began were without demonstrable signs of tuberculosis when examined months later at necropsy. Whether such animals have actually been cured of their tuberculosis in the sense that viable tubercle bacilli are no longer present is not certain. However, there can be no doubt that the disease had been influenced favorably, presumably as a consequence of the substance that was given with therapeutic intent.

When promin is tried in the treatment of clinical tuberculosis, the attempt should be made with the realization that the project will be difficult and the task long and arduous. It would be strange indeed if promin proved the most effective of the compounds likely to be studied for their chemotherapeutic effect in tuberculosis. Compounds that are less toxic and more efficacious are being sought constantly and the possibility of eventually securing a drug more satisfactory than promin is promising. An institution that would provide for the clinical trial of promin would be of course in a position to utilize other compounds as they become available. It should be emphasized, however, that no compound should be used in the chemotherapy of human tuberculosis until its safety and relative effectiveness have been established adequately by results obtained from animal experimentation.

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SOME ASPECTS OF BLOOD STORAGE

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THE widespread use of stored blood, serum and plasma in the treatment of anemia and shock necessitates frequent attempts at correlation of the results obtained with such therapy. Furthermore, the national emergency will tax our present transfusion facilities, and at the same time will extend the use of stored blood so that every clinician must be made aware of the principles, the hazards, and the advantages of the various procedures involved. The urgency of the problem seems to justify a discussion of the fundamentals even at the risk of boring by repetition.

Historically, serious consideration of the possibility of storing blood for transfusions began with the work of Rous and Turner²² at the Rockefeller Institute, who developed the first preservative solution. Their blood-dextrose-citrate mixture was tried on a practical scale by Robertson²¹ at the casualty clearing stations of the Third Army, B.E.F., during World War I. However, this work was forgotten until a group of Russian investigators⁹ began to employ stored blood in civilian cases. Their results, together with those obtained in the Spanish Civil War, and the favorable reports of its use for the first time in the United States at the Cook County Hospital^{17,8} have established the therapeutic status of stored blood for both military and civilian needs.

In the field of transfusions, the bacteriologist

is concerned with the preservation of the blood, and with the serological aspects of compatibility. Eliminating gross transfusion reactions due to incompatible groups is not his only problem, but it is an important one. Reactions due to incompatibility of the main blood groups (O, A, B, AB) are inexcusable, since correct grouping and cross-matching should eliminate entirely this type of reaction. Despite the simplicity of the tests involved, however, such reactions do occur. We have had one such non-fatal accident in the past two years.

Despite the elimination of reactions due to group incompatibility, reactions due to other factors still occur. Most of these reactions are minor, but occasional fatal ones have been observed. The reactions which may be encountered are as follows:

- | | |
|---------------------|-------------------|
| A. Mild: | B. Severe: |
| 1. fever | 1. nausea |
| 2. fever and chills | 2. vomiting |
| 3. chills alone | 3. hemoglobinuria |
| 4. urticaria | 4. jaundice |
| 5. rigor | 5. oliguria |
| | 6. stupor |
| | 7. uremia |

The reaction rate varies with the institution involved and with the interpretation of what constitutes a reaction. In general, however, it is customary to have a 5 to 10 per cent reaction rate of the minor varieties, and less than 1 per cent of

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the more severe forms. DeGowin,³ who has contributed much to the knowledge of the subject by his research on the preservation and administration of stored whole blood, has managed to reduce his total reaction rate to 5.6 per cent. Other workers have been less fortunate.

What are the factors influencing the rate of reactions?

Pyrogens.—The work of Seibert²⁴ and others has demonstrated that numerous bacteria, mostly nonpathogenic, will grow in solutions, in rubber tubing, on glass containers, and in distilled water. These bacteria will give rise to substances (pyrogens) which are not inactivated by sterilization, and which cause chills and fever when injected intravenously. They are undoubtedly responsible for many reactions we obtain from intravenous solutions, and from transfused blood or its derivatives. DeGowin⁵ found that rubber tubing which was allowed to drain for eighteen hours before sterilization was responsible for a high incidence of reaction in blood transfusions coincidental with a rise in the number of reactions following the administration of intravenous fluids. To prevent a similar situation, all apparatus must be rinsed in freshly prepared distilled water, and together with the solutions, sterilized immediately after preparation.

Hemolysis.—It is difficult to assess the rôle of hemolysis as a cause of transfusion reactions. It has been conclusively demonstrated by DeGowin⁶ and others that the amount of hemoglobin in the supernatant plasma increases with the increase in the time of storage. Despite this fact, DeGowin,³ Muether¹⁴ and others have found no significant differences in the number of transfusion reactions caused by blood stored for varying periods of time up to thirty-eight days. If it were demonstrated (which it is not) that old blood gives a larger percentage of reactions than freshly drawn blood, it would not necessarily mean that the hemoglobin is at fault, since a number of other products are formed by the disintegrating cells, along with the hemoglobin. It is our opinion that moderate hemolysis, in itself, is unimportant as a cause of reactions. It is, however, of importance in the therapy of conditions requiring red cell replenishment. We must consider, therefore, such factors as cell fragility, hemolysis, and donor cell survival in the recipient.

Muether¹⁵ has thrown some light on the situation. He demonstrated that mechanical fragility of the cells increases rapidly up to five days after storage, and then stabilizes at a constant level for the next thirty days. Bull and Drew¹ found the red cell count to remain about the same for fifteen days, and then to decrease by from 1 to 1.5 million cells by the end of one month. Philip Levine¹³ has contributed an interesting and pertinent observation on the survival of transfused red cells. Identifying the donor cells by means of the M and N factors, he found that cells stored three, ten or fourteen days survived in the recipient for eighty, sixty or twenty days, respectively, as compared with cells of fresh blood, which were still present in the recipient ninety-five days after transfusion. Thus the patient's syndrome must be considered in determining the importance of the length of storage of the blood to be administered.

To cut down on the rate of deterioration of the cells, various methods have been suggested. Of the greatest importance is the temperature at which the blood is stored since rate of deterioration increases with an increase in temperature. Most laboratories, including our own, keep blood at from 2 to 8° C. Blood kept at room temperature will deteriorate rapidly within twenty-four hours. Scudder²³ has introduced a special bottle which exposes a minimum of blood surface to the air, and has also advocated the use of an atmosphere of CO₂ to prevent deterioration due to oxygen exposure. A number of other workers have demonstrated that agitation increases the rate of disintegration.

Of importance, also, is the solution in which the blood is collected. DeGowin⁶ demonstrated the superiority of a dextrose-citrate-blood mixture over a plain citrate mixture as a preservative solution. The difference in the hemolysis rate, however, only becomes significant after the blood has been stored for ten days. We have not used this preservative at the University Hospitals because all the blood administered is less than ten days old. The slight advantage of the dextrose solution in blood stored for less than ten days is counterbalanced by the increase in the volume stored (650 c.c. of 5.4 per cent dextrose, 100 c.c. of 3.2 per cent sodium citrate, and 500 c.c. blood are contained in the mixture, a total of 1,250 c.c.). In addition, the separate autoclaving of the citrate and the dextrose requires twice as

many flasks and doubles the amount of preliminary work in preparing the collecting apparatus. All this makes it advisable for us to use citrate alone as a preservative solution, and necessitates the use of the most recently drawn blood for those patients requiring red cell replenishment.

Chemical Changes.—Scudder²³ has attached great significance to the potassium which diffuses out of the erythrocytes during storage. He has shown that the potassium level in the supernatant increases progressively with time. Practically, however, DeGowin⁴ has demonstrated that potassium is not important in transfusions of stored blood. I quote his clear conclusions based on actual test administration of bloods with high potassium levels:

The high plasma potassium content in blood preserved for thirty days is not toxic when the blood mixture is transfused into human beings at velocities of less than 43.3 c.c. per minute. The concentrations of plasma potassium encountered in blood stored for one month are not high enough to cause significant increases in the serum potassium of the recipient.

Muether¹⁶ confirms this opinion and cites as further evidence the use of stored blood in two cases of Addison's disease in crisis without a reaction resulting.

Rhoads and Panzer²⁰ and Quick¹⁹ have found that prothrombin of stored blood diminishes on standing and they suggest that such blood is inferior to fresh blood in controlling bleeding in jaundice.

Scudder²³ has demonstrated a change on storage in the electrophoretic pattern of the blood proteins. Other workers have shown a decrease on standing of the leukocytes and complement. All these factors must first be shown to be necessary before we can even consider them as important in specific diseases. At present, they seem to be insignificant in the treatment of shock, and only of theoretical significance in other conditions.

Bacterial Contamination.—The reports of recent efforts to supply blood for the present emergency indicate that bacterial contamination is the single most important factor to be controlled in eliminating transfusion reactions. Only a completely closed system from donor to recipient will prevent contamination, and such a system is manifestly impractical even if possible. It then

becomes necessary to minimize exposure of the blood to bacteria, which may come from the air or from contaminated surfaces. Secondly, it becomes essential to prevent the multiplication of bacteria which may enter the blood despite all precautions.

To minimize exposure, the blood bottle should be capped immediately after collection of the blood, and should not be opened unnecessarily. It is important that the blood be administered as soon as possible after it has been filtered through gauze in an open room. These things should be considered when blood is administered or drawn. The insertion of the hypodermic needle into the donor's vein offers an opportunity for the introduction of bacteria from the well contaminated skin. Thorough application of the bi-chloride-acetone-alcohol solution (Novak's solution) before insertion of the needle will help eliminate this step as a source of bacterial contamination.

The filtering process is not advisable from the point of view of sterility, but until further studies demonstrate a simpler and safer method for eliminating fibrin clots, this procedure will have to be tolerated. Citrate is not a perfect anti-coagulant, and clots will form.

Novak¹⁷ first described the use of sulfanilamide in the preservation of stored blood. He found that the bacteriostatic properties of this drug in amounts "compatible with intravenous dosage" inhibited the growth of organisms normally found as contaminants in the blood. Before the routine use of this drug at the University Hospitals, contaminated bottles were not uncommon. Since its introduction (0.1 gram for every 500 c.c. of blood), there has not been a single contaminated sample in more than 5 million c.c. transfused in the past three years. Every blood reported to cause a reaction has been tested bacteriologically with consistently negative results. It must be emphasized that all the blood was less than ten days old, and during this period the bacteriostatic action of the drug is assisted by the leukocytes and natural bacteriocidal substances in the blood. In older bloods, the disintegration of these factors may make the sulfanilamide less effective.

Iso-antibodies.—The importance of isohemagglutinins in donor blood as a cause of reactions is a problem which still remains to be solved. There is a large amount of work indicating that blood from a universal donor is harmless when

given to a patient of any blood group. More recently, experience derived from the use of plasma and serum has added to the evidence indicating that the isohemagglutinins in administered blood, plasma, or serum are of negligible importance. Nevertheless we must consider isolated instances where the titer of anti-A and anti-B agglutinins has been extremely high, reaching 500 or more. Gesse¹⁰ has published the most complete study on this phase of transfusion reactions. He described forty-six cases of shock following administration of universal blood; twenty of these were fatal. New York State has also recognized the possibilities involved and adopted a sanitary code regulation requiring group O blood to be titrated before use in order to eliminate bloods with a high titer of isohemagglutinins. To counteract the deleterious effects of universal blood, Witebsky and his co-workers²⁷ have introduced antigenically specific A and B substances which neutralize the homologous hemagglutinins when added to the whole O blood. We have used these substances on fifteen patients and have noticed no untoward reactions on the administration of the treated universal blood. Titration of the bloods before and after adding the specific substances revealed the anti-A and anti-B agglutinins in group O blood were almost completely removed. Further work is necessary to demonstrate conclusively the dangers attached to the use of group O blood, and the benefits to be derived from Witebsky's substances. The use of universal blood in infants and children is more to be questioned than its use in adults, since the dilution factor is not so great in young children.

In 1940, Landsteiner and Wiener¹¹ demonstrated a factor in human cells which corresponds to a similar substance in the erythrocytes of the Rhesus monkey. This factor (Rh) is undoubtedly responsible for fatal reactions in humans after repeated transfusion.²⁶ In this respect, it is like the M and N factors, but unlike these, it is not easily demonstrated in a cross-matching. In a later paper¹² Wiener has described a method for detecting the presence of the Rh factor by the use of guinea pig antiserum. Whether the same method can be used in a cross-matching remains to be seen. It may be necessary to test each blood for Rh factor before transfusion to prevent the administration of Rh positive blood to Rh negative patients, but at present the materials for such a routine test are not available. The

guinea pig is not an entirely satisfactory animal, according to Wiener, and a better animal is needed before the antiserum may be used routinely.

The demonstration of the Rh factor suggests the possibility of other similar but as yet unknown substances being responsible for reactions in repeated transfusions. Further experimental work is obviously necessary.

Allergic Factors.—Frequently, following a transfusion, recipients have demonstrated symptoms indicating an allergic response to the transfusion. The most common sign is a generalized urticaria. DeGowin³ could find no relationship between this reaction and a history of allergy in the patient; however, this does not disprove the allergic nature of the condition. Many have recognized the theoretical possibilities of the transfer of allergens in the transfused blood. This has been responsible for the requirement of many hospitals that fasting donors be used exclusively. Such transferred allergins would give an urticaria if associated only with a skin sensitivity, but no other allergic manifestations. Under such a condition, a history for allergy might well be negative.

At the University Hospitals we have not required fasting from donors. This would be impractical, since all the donors are friends or relatives of the patients, and have been difficult to obtain even without prerequisites. The imposition of fasting previous to drawing blood would cut our present supply considerably. However, if a new source of supply is obtained, such a procedure should be endorsed, although the time factor would be arbitrary at best. At the suggestion of Dr. C. J. Watson, we have recently inaugurated the practice of marking the fasting time on the label of the blood bottle. This has been done so that patients with allergic histories may receive bloods drawn as long as possible after a donor's meal.

Blood Bank at the University Hospitals

Blood is drawn by interns of the individual services and given to the blood bank. This blood is credited to the service. There is as much blood in the bank as is credited to all the services. Blood is released from the bank upon receipt of a written request for a cross-matching with the patient's serum. It is given out regardless of the

individual from whom it was drawn or the service to which it is credited.

The blood is kept at from 2 to 8°C., and is labeled as follows:

Group _____ Date _____
 For _____
 From _____ Age _____
 Doctor _____
 Space for Laboratory _____
 Kline _____ Date _____
 Fasting time _____

Before administration, each blood is cross-matched with the patient's serum for agglutination and hemolysis. The agglutination test is run by using a drop of a suspension of the donor's cells plus a drop of the patient's serum. This is incubated on a slide for fifteen minutes at room temperature, and read as to whether agglutination or rouleaux has occurred. The hemolysis test consists of combining equal portions of patient's serum and donor cell suspension in a test tube at 37°C. for one hour. The test is then read as to hemolysis or non-hemolysis. We run both tests as a double check, and because some workers² have suggested the presence in incompatible bloods of isohemolysins independent of isohemagglutinins.

Bloods are not used if agglutination, rouleaux or hemolysis occurs. The detrimental effect of rouleauxed blood has never been demonstrated. Many bloods require numerous cross-matchings because of rouleaux formation, and as a result much extra work is involved.

A Kline diagnostic test for syphilis is run on each blood in the bank. The sensitivity of this test is thought to be sufficient for this purpose. We have numerous false positives, which are checked with the Wasserman and Kahn tests before being used. A 1+ Kline with a negative Wassermann and Kahn is considered safe for use. A sample showing a 2+ Kline confirmed by the State Board of Health is not used. There is every indication that the possibility of transfer of syphilis by stored citrated blood is almost negligible after twenty-four hours of storage, and impossible after storage for three days. Experimental work²⁵ has demonstrated that virulent spirochetes introduced into stored blood are eliminated in from forty-eight to seventy-two hours. Considering the number which might be present in circulating blood, and the fact that most of

our blood stands for at least twenty-four hours, the possibility of a Kline negative blood causing syphilis in the recipient becomes remote, although not impossible.

Until recently we ran sterility tests on all bloods in the bank at the end of five and ten days' storage. Since these were consistently negative (over a two-year period), we eliminated the test except on occasional bloods. We have done this because the test for sterility itself introduces a source of contamination. Tests of all bloods causing reactions have failed to demonstrate a single contaminated specimen.

A few words about the apparatus are necessary for those who are interested in the practical aspects of the problem. Until recently we used the Abbott solution bottle. Priorities interfered with the production of the aluminum caps used for final storage of these flasks and we had to switch to a new container put out by the Upjohn Laboratories. The latter apparatus uses a square bottle which conserves storage space, and a plastic cap for final storage. It has the disadvantage of a complicated "well" for drawing the blood, which introduces another piece of apparatus to be cleaned. However, it is, in our opinion, the most satisfactory apparatus available at present.

During the past two months, we have attempted to collect data for a statistical study of the factors involved in transfusion reactions. It is too early to give a complete analysis of the data, but some of the results so far obtained are of interest. Of 377 consecutive bottles of blood transfused, the age of the blood is given in Table I.

TABLE I

Age of Blood in Days	Number of Bottles Given
1	94
2	57
3	63
4	46
5	36
6	29
7	26
8	16
9	7
10	3

Of the total, approximately 80 per cent were five days old or less. This would indicate, as we have stated previously, a rapid turnover of blood. The reaction rate of a consecutive series of 522 whole blood transfusions was 4.2 per cent. Of

the twenty-two bottles causing a reaction, eight gave repeated reactions in three patients. One patient developed chills and a rise in temperature after each of four bottles administered. Two patients developed these same symptoms after each of two bottles of transfused whole blood.

If we compare this with the reaction rate of 149 plasma transfusions (22,350 c.c.), we find that the plasma has an advantage, which, however, must be strengthened by a larger and statistically more reliable series before any definite comparison can be made between the whole blood and plasma. The reaction rate in the plasma series was 2.0 per cent, three of the 149 transfusions giving rise to reactions.

The types of reactions encountered are shown in Table II.

TABLE II. REACTIONS FROM WHOLE BLOOD

Type of Reaction	Number of Patients
Chill and fever.....	10
Chill	9
Spasms and chill.....	1
Edema	1
Itching	1

In addition to the above symptoms, three patients complained of nausea, one of back pain, one of a "prickly feeling" in the back, and four of headaches. Only two of the twenty-two reactions following the transfusion of whole blood involved heterologous groups. In these cases, group O blood was given to a group A patient. That this was not responsible for the reaction is indicated by the fact that both of these reactions were in the one patient who also reacted adversely to each of two homologous bloods.

Each time a reaction occurred, the blood was cross-matched again, and tested for sterility. In all cases, the results were negative. The fact that some individual patients react with many bloods at different times would indicate that the reaction is associated with some condition in the recipient. That this may be a developed immunity to some factor in the donor blood is suggested by the fact that many of the repeated reactors have had previous transfusions. In the one case with four reactions to four different bloods, the patient was suffering from aplastic anemia, and had been transfused many times before being studied in the present series.

It is beyond the scope of this report to give a

comprehensive discussion on the use of plasma and serum as well as whole blood. Within the last year we have been supplying plasma on demand to all services. The plasma is drawn off whole blood which has stood in the refrigerator until the red cells have settled to the bottom. The plasma is syphoned off the cells and is used immediately after preparation.

All precautions for sterility are observed, but we realize that only a closed system would be entirely satisfactory. Since this is impractical and since filtering of plasma is a task requiring facilities not available to us, we have resorted to the use of freshly drawn plasma transferred in a closed room under a bactericidal ultra-violet lamp.

It is our opinion that this method of obtaining plasma is satisfactory for the present demands of the average hospital. If storage is required, a new problem arises. The simplest method of storing serum or plasma is by rapid freezing and storage at subzero temperatures. We have tried this method on plasma, with the aid of the Human Serum Laboratory, and have found it satisfactory providing the niceties of the freezing and thawing procedure are observed.

If the plasma is not frozen in a shell in CO₂ ice, it yields fibrin clots when thawed out. If it is so frozen, kept at subzero temperatures, and thawed out at 37° C., the final product is entirely satisfactory and gives rise to no reactions.

It must be remembered that frozen plasma will permit the growth of bacteria after the thawing process begins, so the plasma should be used almost immediately after thawing. There is a hazard of contamination in this type of preservation which must always be kept in mind. A more satisfactory way would be to filter the plasma before freezing. The most desirable procedure involves the filtering, freezing, and drying of plasma and serum, which method will eventually replace all others when facilities are available.

The serum versus plasma controversy is one which has more of a partisan than a scientific basis. There is no reason to believe serum to be more toxic than plasma as is claimed by the proponents of the use of the latter. Nor is the evidence of the serum group any more reliable when directed against the use of plasma. It would seem from an examination of the figures on both serum and plasma transfusions that both are better than whole blood in that they cause

fewer reactions. There is, however, no statistically sound information available as to which form (dry or wet, frozen or unfrozen) of serum or plasma is preferable.

No doubt much has been omitted in the above discussion, but it is a fault inherent in so comprehensive a field. We have tried to point out that a fundamental scientific approach to the subject of blood storage and transfusion is essential if we are to get rid of the many superstitions associated with it.

Many other questions arise, and many problems remain to be solved. It is a step forward to recognize their existence.

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GASTROJEJUNOCOLIC FISTULA

Report of a Case

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GASTROJEJUNOCOLIC fistula presents a formidable surgical problem. Czerny was the first in 1903 to report a case of gastrojejuno-colic fistula. Recent reports¹ indicate that there have been 322 such cases recorded in the literature. Undoubtedly, there are many more which have not been reported. Because of the various procedures which have been used to correct this very unfavorable condition, it is believed worth while to report a case successfully treated by a two-stage method.

Gastrojejuno-colic fistula is one of the most dreaded of all complications resulting from gastro-enterostomy. It has been stated that because of the popularity of gastro-enterostomy during the

past fifty years, that this condition has become increasingly more common. This communication is a result of ulceration between the stomach, jejunum and colon and is usually secondary to gastro-enterostomy, but it is also known to be associated with malignancy.⁴

The statistics show the presence of anastomotic ulcers to vary considerably. Some men are of the opinion that marginal ulcers occur in from 1 to 3 per cent of cases.⁸ However, others have reported the frequency of marginal ulcers as high as 35 per cent. The occurrence of gastrojejuno-colic fistulas is overwhelmingly more common in the male than in the female. This is due to the preponderance of peptic ulcers in the male. This complication is found to occur most frequently in the third to fifth decades of life and is found in

From the Interstate Clinic, Red Wing, Minnesota. Read before the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 29, 1941.

patients who are in the so-called peptic ulcer diathesis group.³ The appearance of such fistulas are reported² to have occurred from six weeks to twenty-one years following a gastro-enterostomy.⁷

Symptoms

The most pronounced symptoms of gastrojejunocolic fistulas are: (1) indefinite abdominal pain which may be similar to that of a peptic ulcer or at times may be entirely absent; (2) persistent diarrhea resistant to medication and a watery, alcoholic stool which contains varying amounts of undigested food; (3) rapid and progressive weight loss, despite a good appetite; (4) eructation characterized by a foul odor; and (5) at times the vomiting of fecal material.

Diagnosis

The diagnosis is often easily made, but at times may be very difficult and tests the diagnostic acuity of the surgeon. The use of the barium meal and barium enema are of definite value in establishing the diagnosis of a communication between the upper and lower reaches of the gastrointestinal tract. Once the diagnosis is made, prompt surgical treatment is indicated.

Treatment

The treatment of gastrojejunocolic fistulas consists of prophylactic treatment. This should be directed towards a strict medical management of all patients who have had operations for a peptic ulcer.

To operate on a patient with a gastrojejunocolic fistula without rehabilitation invites disaster. Each case makes its own demand on the judgment of the surgeon. These patients are usually suffering from emaciation, dehydration, chemical imbalance, and a lack of vitamins. Because of the extreme debility of such patients, various surgical procedures have been reported, the mortality ranging from 25 to 63 per cent. However, with a careful pre-operative regime the mortality can be considerably reduced.

Pfeiffer^{5, 6} has recently advocated the use of a colostomy prior to the restoration of the gastrointestinal tract. He stated that the cause of the rapid diarrhea and chemical imbalance in these cases is the regurgitation of colonic material into the stomach, and this causes rapid peristalsis through the small intestine with little or no

absorption of the food. He believes that to sidetrack the fecal stream and thereby not allowing the feces to pass through the portion of the colon involved in the fistula, has a three-fold purpose: (1) prevent feces from regurgitating into the stomach; (2) allows edema and the adjacent inflammation in the tissues to subside; (3) protects the suture line in the repaired colon.

In a recent survey, Pfeiffer has found that in fifteen cases, the mortality has been but 6 per cent when a preliminary colostomy was done. The procedure is justifiable and, as stated above, should be carried out as a first stage to rehabilitate these patients in order that they will be better able to stand the more formidable surgical procedure of restoration of the gastro-intestinal tract or a partial gastric resection, if necessary. Bloc resection of the parts involved in the fistula has often been necessary in treating gastrojejunocolic fistulas.

The case which I am to report has utilized the principle advocated by Pfeiffer, but instead of the use of a colostomy, an ileostomy was done because it was thought that an ileostomy is a less formidable procedure than a colostomy and that it precludes the necessity of crushing the spur as is done in Pfeiffer's method. Also, there is not an undue amount of fluid lost through an ileostomy.

Case Report

J. F., male, aged fifty-four, stated that he had had a gastroenterostomy five years ago and had remained well until two months previously, when he developed a diarrhea, consisting of ten or twelve bowel movements a day. The patient stated that he had been belching up foul smelling gas from his stomach for the past six weeks and that he had lost twenty-five pounds over this period. The laboratory work was as follows: The urine was essentially normal, hemoglobin 90 per cent; red blood count 4,630,000, white blood count 11,700. Differential count of neutrophils 37, lymphocytes 61, large mononuclears 1 and eosinophils 1 per cent. The blood Wassermann was negative. Gastric analysis showed the acidity to be within the upper limits of normal. The feces were found to be negative for occult blood.

A sigmoidoscopic examination was made for a distance of 24 cm. which disclosed a rather injected mucosa with a large amount of undigested food material present. A barium enema was given which showed the barium to immediately enter the stomach as well as the small intestine (Fig. 1). Also, barium by mouth was found to enter almost immediately the colon as well as to go rapidly through the small intestine. A diagnosis of gastrojejunocolic fistula was made.

On January 2, 1941, a knuckle ileostomy was done through a McBurney incision (Fig. 2), a glass rod being used to anchor the loop of ileum. No sutures were taken and the wound was packed with vaseline

of the jejunum. Sulfanilamide crystals were placed on the suture lines.

The patient was given a blood transfusion as well as perenteral vitamins. His chemical balance was re-



Fig. 1. Barium enema entering stomach and small intestines.

gauze. The ileostomy was opened on the second day and the patient immediately responded to the treatment. The diarrhea ceased and he had but one bowel movement by way of the rectum during the ensuing month. The patient no longer had eructations of foul material and his appetite increased. The patient was given perenteral vitamins in large doses and placed on a high-caloric diet. He was discharged on January 15, 1941. When he was next admitted on February 27, 1941, he had gained forty-three pounds. The gastrojejunal fistula was then repaired, the fistula measuring about 2 cm. in length and 1 cm. in diameter. The indurated tissue was removed and the defect in the colon was closed transversely with chromic catgut and supplemented with interrupted silk mattress sutures. The posterior gastro-enterostomy was taken down (Fig. 3). The jejunum was closed with three layers, two layers of catgut, and a third layer of interrupted silk mattress sutures. The posterior wall of the stomach was likewise closed by a similar method. The lumen of the jejunum was somewhat compromised by this type of a suture and it was thought that the lumen of the jejunum would be inadequate to carry food to the lower reaches of the intestine. For this reason, a side to side anastomosis in the jejunum—ajejuno-jejuno anastomosis—was then made, by-passing the stenosed portion

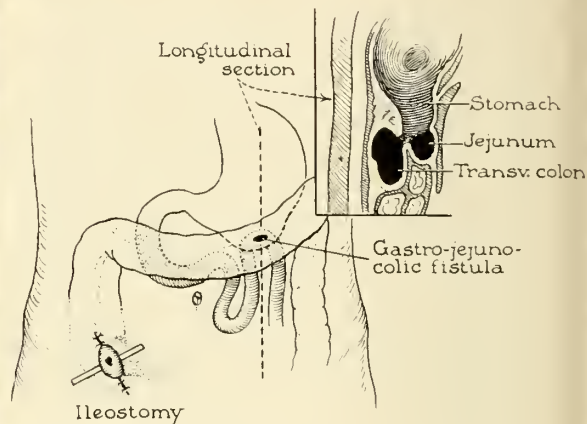


Fig. 2. Illustration showing site of pathologic lesion and ileostomy.

established by means of saline and the patient was discharged on March 26.

The patient continued to improve. There had been no undue fluid loss during the existence of the ileostomy. He became adjusted to wearing a colostomy bag and it was with some insistence that the patient allowed the ileostomy to be closed. He stated that he was perfectly comfortable and because of the inadequacy of plumbing in rural Minnesota in the winter time, he saw no particular reason to have the fecal stream pass in the normal way.

On July 3, 1941, the ileostomy was closed by suturing the defect transversely with chromic catgut sutures and reinforcing with interrupted silk mattress sutures. Sulfanilamide was placed over the suture line and the abdomen closed in layers. The patient was discharged on July 13, 1941.

The follow-up on this patient showed no activation of his former duodenal ulcer and the barium passed normally through the stomach and the remainder of the gastro-intestinal tract. A recent check-up found this patient to be enjoying good health.

Discussion

The use of an ileostomy to divert the fecal stream was followed by marked improvement in the patient as well as subsidence of the diarrhea. The use of an ileostomy rather than a colostomy proved beneficial and is thought to be an easier surgical procedure, and can be done with practically no mortality. The use of stage operations such as this allows, as Pfeiffer has stated, for improvement of the patient, allows the inflammatory reaction in the region of the fistula to subside, and also serves as a safeguard against blow-

ing out the suture line in the colon. As has been stated in numerous articles, patients suffering from this condition, the so-called ulcer diathesis, should in certain cases have a partial gastric resection so as to preclude the possibility of any

3. The merits of stage operations utilizing Pfeiffer's principle of diverting the fecal stream so as to allow the patient to be rehabilitated before restoration of the gastro-intestinal tract is attempted, has been described.

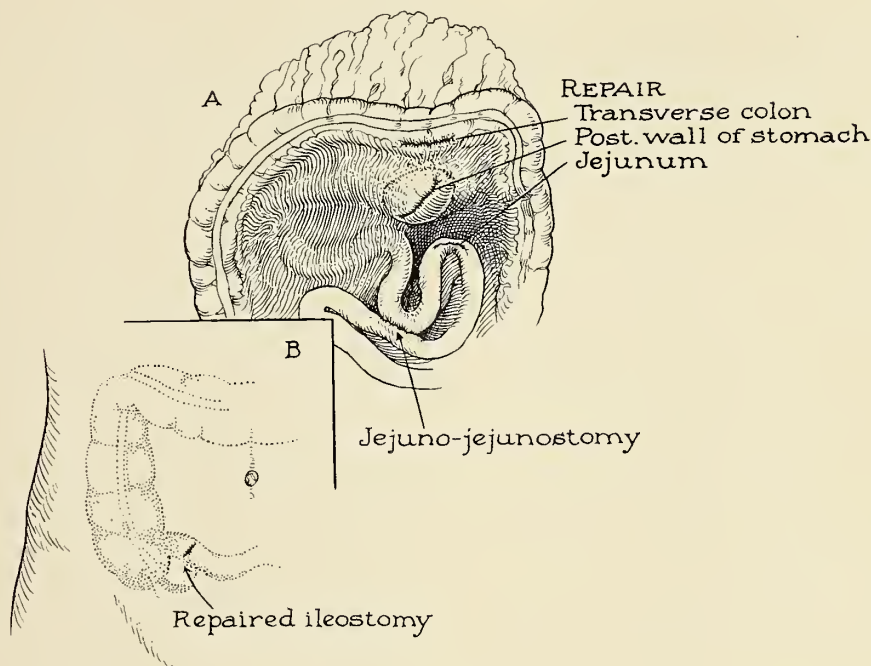


Fig. 3. Illustration showing repair of transverse colon and restoration of continuity of gastro-intestinal tract, also site of jejunostomy. Insert: Site of ileostomy.

further ulcer formation. However, it is felt in this case that because of the age of the patient that his acid will gradually decrease, thus lessening the chances of recurrence of his original duodenal ulcer. It is not thought that a procedure such as a gastric resection is warranted at this time.

Summary

1. A case of gastrojejunocolic fistula is reported.
2. Ileostomy is efficacious in diverting the fecal stream.

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In planning the battle strategy against tuberculosis we need to keep in mind important traits or characteristics of the enemy. We have had a recent taste of dealing with an enemy of slimy cunning, hiding under a cloak of diplomatic conversations. Tuberculosis is another such foe; sneaking, insidious and stealthy. No policy of appeasement or of diplomatic negotiation will accomplish results. Either this must be an "all-out" war or it will be one of the comic opera variety. Another characteristic of this foe is the habit of striking hardest where resistance is least. To conquer such a foe we must be fully prepared, well armed. We must attack on a wide front and not merely by launching two-man submarines.—MATHEW WOLL, *Pennsylvania's Health*, Feb., 1942.

MITRAL STENOSIS AND PARALYSIS OF THE LEFT RECURRENT LARYNGEAL NERVE

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CONVINCING proof is yet wanting that paralysis of the left recurrent laryngeal nerve may be caused by mitral stenosis. Mitral stenosis is a common clinical condition. However, in only a rare case of mitral stenosis is any evidence exhibited of an associated laryngeal paralysis.¹ If there is a cause and effect relationship between these two conditions, it is difficult to understand why paralysis of the left recurrent laryngeal nerve is seen so seldom in a condition as common as rheumatic mitral heart disease. Kelly² suggested that perhaps the association of left laryngeal paralysis with mitral stenosis was merely a coincidental occurrence. It is a well known fact that in many cases of laryngeal palsy there is no clue whatever as to the etiology.³ New and Childrey⁴ presented 194 cases of paralysis of the left recurrent laryngeal nerve; in sixty-seven of these, or 63.8 per cent, the condition was of unknown cause. Had mitral stenosis been present in any of these sixty-seven cases, it would have been logical to assume that laryngeal palsy was the result of the associated mitral stenosis.

To add to the uncertainty, several different mechanisms have been postulated to explain how mitral stenosis may cause paralysis of the left recurrent laryngeal nerve. Ortner⁵ in 1897 first described the occurrence of left laryngeal paralysis in association with mitral stenosis. The cause of the laryngeal palsy, he said, was pressure on the recurrent nerve by the dilated left auricle which compressed the nerve between the auricle and the arch of the aorta. Herrick⁶ and later Grabower⁷ subscribed to this view, but Fetterolf and Norris⁸ in 1911 showed rather conclusively that pressure of the left auricle against the arch of the aorta was anatomically impossible. They found that in mitral stenosis the dilated left auricle pushed the pulmonary veins upward; these veins, in turn, exerted pressure on the superiorly located pulmonary arteries. The already dilated pulmonary arteries compressed the recurrent nerve between themselves and the aorta and the aortic ligament. King, Hitzig and

Fishberg¹ reported three cases of hypertensive and arteriosclerotic heart disease in which an associated left laryngeal paralysis was present; laryngeal palsy developed in two of the cases after coronary occlusion. They explained the paralysis as being caused by dynamic compression of the recurrent laryngeal nerve between the pulmonary arteries and the arch of the aorta. The reason laryngeal palsy was found so rarely in cases of mitral stenosis, they suggested, was that the anatomic conditions necessary for compression of the recurrent laryngeal nerve by the pulmonary arteries are fulfilled in only a small proportion of persons.

Hall, Ferrier and Permewan⁹ and Kraus¹⁰ believed that the left recurrent laryngeal nerve becomes paralyzed as a result of traction exerted on it by the aortic arch, which is dragged upon by the enlarged heart. Adam¹¹ and later Langeron¹² stated that laryngeal nerve palsy did not occur in heart disease unless there was some associated inflammatory condition in the mediastinum or in the pericardium.

Thus, five different mechanisms have been described to show how the dilated heart in mitral stenosis may cause paralysis of the left recurrent laryngeal nerve and none actually has been proved.

This report is based on ten cases in which paralysis of the left recurrent laryngeal nerve was associated with mitral heart disease. The records of 223 patients who had left laryngeal palsy were examined in the course of this study. In all cases, the diagnosis of paralysis of the left recurrent laryngeal nerve had been made by a qualified laryngoscopist. There were ninety-one cases, or 41 per cent, in which no cause for the laryngeal paralysis could be found. Had a mitral cardiac lesion been discovered in any of these cases of unknown etiology, the laryngeal palsy probably would have been considered to be a result of mitral stenosis. Actually, two patients who did have mitral stenosis were included in this group. They represented well-compensated subclinical conditions in which very little cardiac enlargement was present, and we considered the

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mitral stenosis to be merely coincidental. The condition of these two patients previously had been diagnosed as laryngeal palsy secondary to mitral heart disease.

Paralysis of the recurrent left laryngeal nerve among the ten patients mentioned herein was considered to be the result of mitral heart disease. The average age of the patients was thirty-eight years. There were six females and four males. Two patients had auricular fibrillation. All ten patients were suffering from well-advanced mitral stenosis and were found to have markedly enlarged hearts by clinical and roentgenologic examination. More significant, however, was the fact that in all but two cases recurrent laryngeal palsy had occurred during a period of cardiac decompensation. The other two patients had a marked reduction in cardiac reserve, but had not as yet experienced actual congestive failure.

Assuming that left laryngeal palsy has only a fortuitous relationship to the presence of mitral stenosis, we should expect mitral stenosis to be found no more frequently among patients suffering from left laryngeal palsy than among patients taken at random. We found, actually, among the 223 records of left laryngeal palsy that were reviewed, ten cases of mitral stenosis, or an incidence of about 5 per cent. A study of the general records in the clinic revealed that mitral stenosis is present in the clinic population as a whole in only about a half of 1 per cent of cases, so that we found mitral stenosis to be relatively ten times more frequent among patients who had paralysis of the left laryngeal nerve than it was in the general control group. Similarly, it could be argued that if the relationship of left laryngeal palsy and mitral stenosis were merely circumstantial, then mitral stenosis would be found at least half as frequently among cases of *right* laryngeal palsy as among cases of *left* laryngeal palsy. (Paralysis of the right recurrent laryngeal nerve occurs about half as frequently as paralysis of the left recurrent laryngeal nerve).⁴ On the other hand, if the rationale on the basis of which this inquiry is being made has validity, namely, that in the presence of mitral stenosis and the

resultant enlargement of the right portion of the heart, pressure is exerted on the left recurrent laryngeal nerve which results in laryngeal paralysis on that side, then mitral stenosis should occur more than twice as frequently in instances of left laryngeal palsy as in cases of right laryngeal paralysis. As a matter of fact, whereas we found that nearly 5 per cent of the patients suffering from paralysis of the left recurrent laryngeal nerve had coexisting advanced mitral cardiac disease, no instances of clinical mitral stenosis were found in any of the cases of right laryngeal palsy which were reviewed.

Summary and Conclusions

Well-advanced rheumatic mitral cardiac disease was found in ten of 223 cases of paralysis of the left recurrent laryngeal nerve, whereas no instances of advanced mitral cardiac disease were encountered among patients who had right laryngeal palsy. Mitral stenosis was found to be relatively ten times as frequent among patients who had paralysis of the left recurrent laryngeal nerve as it was in a general control group. These observations suggest that there is a causal relationship between the enlarged heart present in mitral stenosis and paralysis of the left recurrent laryngeal nerve.

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Routine collapse therapy of minimal pulmonary tuberculosis is not justified. Conservative therapy is the treatment of choice. From 75 to 80 per cent of the cases (studied) resolve or fibrose and become stable with bed rest and remain well.—I. D. BOBROWITZ, M.D., *Amer. Rev. of Tuberc.*, Mar. 1942.

CLINICAL-PATHOLOGICAL CONFERENCE

◆ MINNEAPOLIS GENERAL HOSPITAL ◆

Frank C. Andrus, Pathologist

Presentation of a Case

DR. FRANKLIN MOOSNICK: The case is that of a chemist, forty-nine years old, who was admitted to the Minneapolis General Hospital on July 29, 1941. His present complaints go back to the beginning of 1941 when, for the first time in his life, he began to develop signs and symptoms of right and left heart failure. At that time, he was taken to one of the private hospitals and kept there for three weeks. He was treated by his physician with digitalis and became compensated during that period of time and was able to go home. He insisted that he had followed his cardiac régime religiously at home, but two months later he began to develop signs of mild heart failure. His most distressing complaint was severe nosebleeds which he could not control at home. He stated that his blood pressure was 240 systolic. A month or so later he became decompensated and was again hospitalized in June, 1941. He went home and some two or three weeks before admission, early in July, 1941, he again became decompensated and had the additional symptom of spitting up blood-tinged sputum. His past history was not remarkable. He had had rheumatic fever at the age of twelve years. He had had no episodes of rheumatic fever since then although he had had frequent sore throats which were followed by quinsy. He had some difficulty with his eyes which took the form of blurring of vision, spots before his eyes, headaches, and dizziness. These symptoms dated back to a year or eighteen months before admission to the hospital. His only other complaints were frequency and nocturia with day and night urinations being about five times each.

Physical examination revealed a mildly dyspneic and slightly cyanotic man. The pertinent physical findings included the signs of left heart failure with râles in the bases and a slight amount of free fluid in both bases. The cardiac dulness measured 12 cm. to percussion on the left. The rhythm was grossly irregular. The blood pres-

sure was 170/118. The liver was enlarged. There was two plus edema of the ankles. The scrotum, at that time, was markedly thickened and swollen, the thickening being more than just edema. It was covered with flat, purple lesions which later on skin consultation were found to be angiokeratomata.

Laboratory Findings: There was slight leukocytosis, 13,900, with a normal distribution of the leukocytes. The hemoglobin was 72 per cent and the erythrocyte count was 5,200,000. The blood urea nitrogen was 23 mg. per cent. The urine revealed a maximum concentration of 1.019; it contained three plus albumin, occasional casts, a few white cells, and to as high as 20 red cells in all specimens. Serologic tests for syphilis were negative.

He was placed on the usual cardiac régime with limited fluids, diuretics, et cetera. He responded with a good diuresis. In the course of the first week or ten days, he lost twenty-five pounds in weight. Three or four days after admission, his temperature rose to 103 degrees and he developed a leukocytosis of 18,000. The chest was clear on physical and x-ray examination. No focus of infection could be found. It was during the exceedingly hot part of summer then and it was the opinion of the staff that he was suffering from heat retention secondary to marked diuresis and limited fluids. The fluids were increased slightly and his temperature fell. During the course of his management, he showed signs of digitalis intoxication and developed an acute heart block with A-V disassociation. Extra-systoles were heard. He became cyanotic and the heart rhythm was irregular, however, he did well on a cardiac régime. The heart rate later became regular and slow. He was transferred to a rest home for prolonged rest and convalescence.

He was again seen on the Medical Service on November 18, 1941. Physical examination at that

time was essentially negative. He was well compensated but the hypertension persisted. He now had hematuria in addition to the previous findings of albumin and low specific gravity. He was seen in consultation with the Genito-Urinary Service at this time and they felt that his difficulties were due to prostatic obstruction. Following their usual genito-urinary work-up, including pyelography and cystoscopy, a transurethral resection was done. He had a fairly stormy course following this. He bled rather profusely and many clots formed in the bladder. Cystoscopy was done and the clots were removed. They had to resort to suprapubic cystotomy to get the remainder of the clots.

In February, 1942, the suprapubic wound closed and he could urinate well. He was again transferred to the rest home for further convalescence. He apparently got along quite well for about a month. Early in March, 1942, he became decompensated again. There was a three plus edema of the legs. The liver was enlarged. The patient was slightly dyspneic. His blood pressure was 248/136. He was placed on limited fluids in addition to his digitalis and given diuretics. He improved somewhat. The edema went down and he was apparently coming along well. On March 12, 1942, at 4:00 p.m., previously having had a good day, he suddenly became quite cyanotic and dyspneic. He lost consciousness and his pulse became weak and thready. The respirations were fast and labored and then slow and labored. He sank into a coma and failed to respond. He expired about one hour and fifteen minutes after the onset of the attack.

DR. F. ANDRUS: Here we have a man of forty-nine years who had a history of hypertension and rheumatic fever and who had been hospitalized for a period of nine months with severe heart failure which responded to bed rest, digitalis, and to the usual treatment for heart disease with congestive heart failure. Then we notice that when he was compensated, we have a sudden death. Now what things may we think of as the cause of sudden death in this type of case?

DR. A. PEPPARD: I do not want to tell you the cause of his sudden death, but I do want to state that I would object most strenuously to an attempt to make a diagnosis from the information at hand. Even if the autopsy should show that it was due to coronary insufficiency or throm-

bosis, I would still object. There is too much tendency for people to ascribe sudden, unexplained deaths to coronary disease.

DR. ANDRUS: I think that is a good point. If we have a sudden death in a patient having hypertension, too many people assume that the death was due to coronary artery disease without proper and adequate study to support such an assumption. One must remember that in chronic heart failure, pulmonary embolism is very common and is often the cause of sudden death.

Autopsy Findings

DR. RALPH PAPERMASTER: The body was that of a well developed and well nourished white male. There was one plus edema of the legs. Upon opening the abdomen, the peritoneal cavity was found to contain about 100 c.c. of fluid. The pericardial sac contained about 200 c.c. of clotted blood. The tissue at the base of the heart was markedly hemorrhagic. The transverse thoracic diameter was 30 cm. and the transverse cardiac diameter was 20 cm. The heart weighed 980 grams, including the arch of the aorta. All of the chambers of the heart were markedly dilated. The left ventricular wall measured 22 mm. in thickness. The edges of the mitral valve were thickened and retracted. The hemorrhagic tissue at the base of the heart extended 12 cm. up over the arch of the aorta to the origin of the left subclavian artery. The hemorrhage extended up the innominate artery as far as it could be followed. It also extended up the pulmonary artery and into the hilus of the lung. There was some hemorrhage following the anterior descending branch of the left coronary artery for a distance of about 3 cm. but not encroaching upon the lumen of the vessel. Upon opening the aorta, marked atherosclerosis was seen. There was a transverse rent in the intima of the wall of the aorta about 3 cm. above the aortic ring 2 cm. in length. The right end of the rupture was at the orifice of the right coronary artery. Extending distally from the center of the transverse tear was a longitudinal tear 12 mm. long. The rupture appeared to extend through the wall to the adventitial layer of the aorta. The hemorrhage could be followed along the coronary artery, up the aorta and innominate and pulmonary arteries. The lungs were otherwise negative.

The liver weighed 2,400 grams. The surface

was roughened and on cut section the nutmeg was seen. The kidneys each weighed 160 grams. appearance of severe chronic passive congestion. They were pale and had a granular appearance on cut section. The cortex could not be sharply distinguished from the medulla.

Examination of the brain revealed marked arteriosclerosis of the vessels. The cut surfaces of the brain were normal except for two small areas. One area showed encephalomalacia 1 cm. in diameter just above the posterior cornu of the right ventricle. Just below the cortex in the depths of the calcarine fissure on the right there is a thrombosed vessel measuring 2 mm. in diameter.

Anatomic Diagnoses: (1) Hypertension; (2) myocardial hypertrophy; (3) dissecting aneurysm of the aorta; (4) hemopericardium; (5) renal arteriosclerosis; (6) cerebral arteriosclerosis.

Discussion

DR. ANDRUS: In the microscopic examination of the aorta one sees the primary anatomic change encountered in cases of dissecting aneurysm. The change is that of medio-necrosis. The elastic fibers have become frayed and split and broken to give the wall a hyalin or granular appearance. The lesion does not appear to be inflammatory in any sense. It is not related to syphilis although syphilitic aneurysms do occasionally dissect. The lesion is also not related to atherosclerosis which is primarily an intimal change. This medio-necrosis appears to be a change produced by the aging process and it seems to be more marked in individuals who have had chronic hypertension. A very rare occurrence in this case was the dissection out into the

pulmonary artery. The microscopic sections show that the dissection has extended out even to the finer branches. The pulmonary arteries do not show any medio-necrosis. The split in the aorta is between the medial two-thirds and the outer one-third of the blood vessel. Sections of the myocardium show marked hypertrophy of the muscle fibers, and the kidney shows the subintimal deposits of hyalin in the glomerular arterioles which is so characteristic of chronic hypertension. The kidney parenchyma itself appears to be functionally competent.

Dissecting aneurysm is not rare. There are several things that we might learn from this case. In the first place, it is primarily a disease of the media of the great conducting arteries. There is no inflammatory lesion and it is primarily not due to atherosclerosis. In fact, the tear in the intima is in most instances apart from an ulcer. A number of cases occur with some excitement which apparently elevates the patient's blood pressure. I remember doing an autopsy on a woman whose attack developed while she was attending an exciting gangster movie. Severe exertion apparently initiates some of the attacks. Occasionally, the aorta ruptures completely and this patient dies suddenly of what we speak of as spontaneous rupture of the aorta. The symptoms vary tremendously depending upon the course that the dissection takes. Most commonly there is hemorrhage into the pericardial sac so that the ventricles cannot fill during diastole and the patient dies after a short period of coma. Occasionally very unexpected symptoms occur. I remember examining one patient who was seized with a severe pain in his abdomen while walking to work. A few hours later he developed abdominal distension with pain. A diagnosis of intestinal obstruction was made. He died of a mesenteric infarction not due to embolism or to thrombosis but due to the extension of a dissecting aneurysm about the mouth of the superior mesenteric artery so that it was occluded. Another patient presented the complaint of severe pain in the back and anuria. In this case the dissecting aneurysm had occluded both renal arteries causing infarction of both kidneys. Occasionally, the aneurysm ruptures back into the lumen of the aorta and the patient may survive for some time with what we speak of as a healed dissecting aneurysm. It is very interesting to note that the new false passage becomes lined by endothelium and it may become the seat of atherosclerotic patches.

CASE REPORTS

PRIMARY MALIGNANT MELANOMA OF THE CHOROID

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MELANOMA of the choroid, a highly malignant type of growth, is comparatively rare. Statistics from large eye clinics reveal an average of only one such instance among 2,000 patients. As a result, it is difficult to obtain a large series of cases for detailed study. However, at Washington, D. C., in the American Registry of Ophthalmic Pathology, there are 1,600 cases of malignant intraocular melanoma. Colonels Callender and Ash³ followed five hundred of these patients

for five years or longer, and as a result made some very interesting observations.

Case Report

The patient, a white male, aged 58, was first seen at home on August 14, 1941. Following a light supper he was suddenly seized with severe abdominal pain, associated with nausea and vomiting. He was found writhing in pain and perspiring profusely and he was immediately transferred to the hospital.

Past Medical History—Patient had had recurrent attacks of tonsillitis over a period of years; chronic

From the Lenont-Peterson Clinic, Virginia, Minnesota.

prostatitis in 1938; and fracture of the first metacarpal of the right foot in 1938. An injury to the right eye in 1926, while employed as a sawyer at a lumber mill, had been apparently followed by complete recovery at the time, but ten years later, presumably the effects of the same injury necessitated the enucleation of the right eye. A tonsillectomy was performed in 1939. During the six months prior to admission to the hospital, the patient had had vague abdominal symptoms, a moderate secondary anemia and a slight loss of weight. A diagnosis of malignancy of the stomach was considered, but roentgenograms and laboratory findings would not substantiate it.

Physical Examination.—The patient, a rather emaciated male, was evidently in severe pain. The right eye was artificial; the left eye had an uncorrected vision of 20/25. The nose and ears were normal. The tonsils had been removed, and upper and lower dentures were present. The heart and lungs were normal. The entire abdomen was extremely rigid without any areas of localized tenderness. There were no palpable masses. A roentgenogram of the abdomen and chest was taken, but showed no evidence of subdiaphragmatic air.

Laboratory Findings.—Hemoglobin, 74 per cent; red blood cells, 3,940,000; white blood cells, 8,350. The differential blood count revealed 87 per cent polymorphonuclears, 10 per cent lymphocytes, 2.5 per cent monocytes, and 0.5 per cent eosinophils. Wassermann and Mantoux tests and the urinalysis were all negative.

Treatment and Course.—A tentative diagnosis of perforated gastric ulcer was made and a laparotomy advised. Upon opening the abdomen a small amount of clear fluid was encountered, and there were small masses of gelatinous material floating free in the abdominal cavity, suggestive in appearance of partially organized old bloodclots. The liver was enlarged and extended about three fingers below the costal margin. It was thickly studded with nodules of a coal black color, varying in diameter from 2 to 3 mm. or 2 or more cm. Careful exploration failed to demonstrate any perforation of the viscus or other pathological changes besides those noted. A nodule was removed from the liver for biopsy. Postoperative inspection of the skin revealed no moles or scars suggesting previous removal of moles. Although the postoperative course was rather stormy, the patient was discharged on the eighth day with the abdominal wound well healed. In the five months that have elapsed since the operation, the man has shown a gradual, yet very marked, decline.

In a discussion of the findings of the exploratory operation with the patient's wife, it was learned that the right eye had been removed because of a malignancy. The attending ophthalmologist in 1936 stated that the patient gave a history of a severe injury, ten years previously, to the right eye. At that time there was facial swelling, but impairment of vision did not occur until about nine years later. Examination showed a severely inflamed right eye with a shallow anterior chamber and a fixed pupil. There was increased tension, a ground glass cornea, and detachment of both retina and choroid. Transillumination of the eyeball was poor, indicating some obstructive substance within the posterior chamber. Diagnosed as sarcoma of the choroid, the eye was enucleated. The malignancy was confirmed by the pathological findings.

The biopsy report of the nodule taken from the liver during exploratory operation in 1941 was as follows: "The black masses are formed by tumor tissue. Some tumor cells have the appearance of epithelial cells while others are elongated and spindle-shaped. The tumor cells have pale-staining, round or oval nuclei, and they are often loaded with a large amount of granular dark brownish pigment. Only few mitoses can be seen. The tumor tissue shows a marked tendency to infiltrate the surrounding liver substance. The diagnosis is metastases of a malignant melanoma to the liver."

Comment

Similar instances of primary intraocular melanosarcoma with metastases have been reported by Dejean,⁶ Kreibitz,⁷ Lacroix,⁸ Acki,¹ Fiessinger,⁶ and others. Burch,² commenting on this case, stated: "In my experience I have seen this happen a number of times. Two years ago, I saw in a ward of a local hospital, a former patient from whom I had removed the eye for sarcoma five years previously. She had just had an exploratory laparotomy. The abdomen was closed without further operation after a malignancy of the liver was discovered. One of my cases developed a metastasis in the thyroid; another developed pneumonia six months after enucleation of the eye, and it was found at autopsy that she had a carcinoma of the lung. It is a common experience after melanosarcoma of the choroid to have metastases develop elsewhere sooner or later, even after a period of eight to ten years. Among some fifty-odd melanosarcomas of the choroid that we have in the University of Minnesota records, together with specimens submitted for examination, we have been trying to send out follow-up letters to ascertain the five- and ten-year cures and the number of metastases that have developed and their location."

Several theories as to the origin of ocular melanoma have been suggested. After making a study of serial sections of seven choroidal sarcomas, Theobald¹⁰ showed that these tumors originate from the Schwann sheath cells of the ciliary nerves as they pass through the choroid. Similarly Masson⁹ observed that all types of sensory and motor neural tumors have as a fundamental element a proliferation of Schwann sheath cells which are ectodermal in origin.

According to their microscopic appearance Callender⁴ classified melanosarcoma:

1. Spindle cell type A and B
2. Epithelioid cell type
3. Fascicular cell type
4. Mixed cell type

The spindle type A has a good prognosis, whereas type B averages a 10 per cent malignancy. In the epithelioid type, the most malignant form of melanosarcoma, approximately 70 per cent of patients expire within ten years. The fascicular type is the next in predominance of metastases; while the mixed cell type has a variable prognosis. According to Callender³ the total number of deaths from metastases, among 500 cases followed five years or longer, was 239, or 48 per cent; the mortality increased to 68 per cent among the 200 cases followed ten years or longer.

Malignant melanoma frequently develops in a blind eye of long standing, as noted in the case reported. Approximately 85 per cent of ocular melanomata are found in the choroid. The possibility of previous injury to the eye as an etiological factor is controversial. Following enucleation for melanosarcoma of the choroid, metastases have occurred even as long as twenty-four years later. Malignant melanoma of the eye is rarely found in children, as evidenced by only thirty-one recorded cases.

As with all malignancies, intraocular melanosarcoma

has a most unfavorable prognosis. Von Hippel¹¹ maintained that enucleation is useless except when done in the very earliest stages of the disease. Therefore, an early diagnosis should be of decided importance in lowering the mortality rate.

Summary and Conclusions

1. A case of primary malignant melanoma of the choroid with metastases is reported.
2. Callender's classification of melanosarcoma is discussed.
3. Attention is called to the variation in time that may elapse between the primary lesion and the development of metastases.
4. An earlier diagnosis of intraocular melanoma is the only way we now have to improve the prognosis.

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THE TREATMENT OF THYROID CRISIS With Special Reference to the Possible Use of Spinal Anesthesia

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THE following case is presented because of the improvement noted following the use of spinal anesthesia in a case of severe postoperative thyroid crisis.

The patient was a white, married female, forty years old, who had had symptoms of hyperthyroidism for eight months. She had lost thirty-five pounds in weight in that time, was nervous, irritable, and had noticed a slight exophthalmos. Her appetite was excessive and her palms were always moist with perspiration.

Examination of the thyroid revealed a diffusely enlarged gland. There was slight exophthalmos. Her blood pressure was 140/80. Three basal metabolic rates had been plus 53, plus 32 and plus 20 per cent, while receiving Lugol's solution and sedation for one month. The pulse dropped from 120 to 90 during this time. Examination of the urine was negative. The hemoglobin was 65 per cent with 3,500,000 erythrocytes.

On May 13, 1941, a bilateral subtotal lobectomy was performed. The patient seemed to stand the procedure well, but that evening the pulse rose to 140 per minute, blood pressure 170/90, respiration 32 per minute and temperature 103.6 (rectal). She was restless and somewhat confused mentally. In the ten hour period since operation she had been given 2500 cc. of 5 per cent glucose in normal saline, two doses of morphine sulfate, gr. 1/4, two doses of nembutal, gr. III, 15 gr. of sodium iodide intravenously, 60 minims of Lugol's solution in 200 cc. of tap water by proctoclysis.

When the author saw her in consultation about twelve hours after her operation, there was no question but that she had a thyroid crisis. The attending surgeon had tried everything that is usually given for this condition. It was decided to try to increase the sedation and also to give a blood transfusion. The next morning the patient was very restless and irrational. The nurse said that nembutal, gr. III every two hours for three doses, failed to quiet her. The patient's temperature was 104.6 (rectal), pulse 160 per minute,

blood pressure 180/110, respiration 45 per minute and the patient looked as if she were going to die unless some relief were given shortly. It was then decided to try spinal anesthesia. Sixty milligrams of procaine hydrochloride (novocaine crystals) were given intraspinally in the third lumbar space. Anesthesia was obtained to about the fourth rib anteriorly, but it was not complete, as the patient could still move her legs after the anesthesia was given. The effect on the blood pressure, pulse, respiration and temperature was dramatic. The blood pressure fell almost immediately (shock-like phenomenon?), the pulse and respiration became slower, and the temperature was 100° about three hours later. The patient immediately became quieter and went to sleep. This was somewhat disturbing at first, but since the blood pressure was maintained above shock level, no great concern was felt. The anesthesia wore off in about one and a half hours. Following this, the patient was given phenobarbital, gr. I, t.i.d., and Lugol's solution gt. XV, t.i.d., and 3000 cc. of 5 per cent glucose, half in saline and half in triple distilled water, every twenty-four hours for three days. Twenty-four hours after the anesthesia, the blood pressure and pulse rose temporarily, but this was apparently controlled by nembutal, gr. III. The patient made an uneventful recovery and was discharged on the fourteenth postoperative day. When seen six weeks later, she said she felt better, had gained ten pounds, and was less nervous and irritable. Her basal metabolism rate was plus 12 per cent, pulse 90 per minute.

Discussion

The disturbing feature in the treatment of thyroid crisis or storm is that there is no specific therapy known to date. Fundamentally, the cause of this condition is still obscure. It is not certain whether the primary difficulty lies in the thyroid gland itself or whether other organs, such as the adrenal, liver, pituitary, etc., are the site of the disorder. If the primary organ at fault is the thyroid gland, it is unknown whether

From the Department of Surgery, University of Minnesota Medical School. Read before the Saint Paul Surgical Society, October 9, 1941.

er the symptoms are due to an excess of normal secretion or to an abnormal secretion. Crile seems to believe that the adrenals are at fault in thyroid crisis. Maddock, Collier and Pedersen have found "adrenalin" in the peripheral venous blood of some patients with reactions to hyperthyroidism, the quantities found suggesting a direct relationship to the severity of the reaction. Lahey states that in his opinion "most thyroid deaths are largely liver deaths." The results of the thorough review by Foss, Hunt and McMillan showed that neither the heart, liver, thyroid or thymus alone seemed to be at fault in thyroid crisis. In their opinion there was no proof that thyroid crisis followed sudden hypersecretion of thyroxine, epinephrine or both. Good summaries of the present concepts of thyroid crises are given by Foss, Hunt and McMillan and also Pemberton. One reason why postoperative crisis, in association with typical exophthalmic goiter is now uncommon, is that these patients' are given careful preoperative care. The importance of mental and physical rest, by environment and drugs, high caloric intake and the judicious use of iodine, chiefly in the form of Lugol's solution, is well recognized.

Concerning the operation for hyperthyroidism, there is no question that in selected cases stage procedures have lessened the incidence of postoperative reactions. It is interesting to note how in recent years stage procedures have passed from those of necessity to those of election. Postoperatively, it is important to watch the blood pressure, pulse, respiration and temperature, because if they begin to rise, one should suspect a thyroid storm or crisis. When a thyroid crisis begins or seems imminent, the therapy consists of the judicious administration of sedation; iodine medication by vein, mouth or rectum; oxygen therapy, intravenous glucose and fluid; cold compresses; etc. Occasionally blood transfusions have been given. It would be interesting to see what effect transfusions of blood from patients with myxedema would have on patients with a thyroid storm.

Occasionally, however, in spite of the above measures, the patient does not improve. In such instances, the use of spinal anesthesia might be considered. Crile has reported beneficial results following spinal anesthesia in a few cases of thyroid crisis. Bartels, Stuart and Johnson tried it in one case. While the immediate clinical improvement was striking, the patient subsequently died.* The procedure is not irrational, on the basis that spinal anesthesia temporarily denervates the adrenal glands.

It is not the purpose of this paper to recommend the use of spinal anesthesia in the routine treatment of thyroid crisis. In fact, there are several objections that might be voiced against its use: (1) Spinal anesthesia is not a harmless form of therapy in itself and its use in an ill patient is not without danger, (2) there is no definite proof that the adrenal glands are primarily at fault in thyroid crisis; (3) the *post hoc, ergo propter hoc* type of reasoning is dangerous, especially when other medications were used; and (4) thyroid crisis may cure itself spontaneously.

On the other hand, the whole treatment of thyroid crisis is symptomatic and until a specific cause and treatment for the condition is known, the therapy will be rather empirical. It would seem justified to use spinal anesthesia in selected cases when the usual methods of treatment of severe thyroid crisis have failed. Until more cases reporting the use of spinal anesthesia in thyroid crisis are available, enthusiasm or wholesale application of this procedure is not warranted.

Summary

A case of severe thyroid crisis following bilateral thyroid lobectomy successfully treated by spinal anesthesia is reported. Some general ideas regarding the cause and treatment of thyroid crisis have been discussed. A plea for conservatism in the use of spinal anesthesia in thyroid crisis is made.

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*In personal communications to the author, Dr. Emil Goetsch, Dr. R. B. Cattell of the Lahey Clinic, and Dr. J. de J. Pemberton of the Mayo Clinic, stated that they had no personal experience with the use of spinal anesthesia in the treatment of thyroid crisis.

SCIENTISTS URGED TO SAVE VALUABLE JOURNALS

Scientists feeling the patriotic urge to turn over to waste-paper collectors piles of old technical journals which they no longer need are urged to look them over first with an eye to their possible use in rebuilding war-damaged libraries abroad. Many such libraries have lost all or part of their files of scientific periodicals, or have been unable to keep them complete due to interruption of the mails or loss of shipments at sea.

The American Library Association has appointed a special committee which is functioning under the chairmanship of John R. Russell, librarian of the University of Rochester, N. Y. Scientists who have accumulations of old journals are requested to write to Mr. Russell, before turning them over to waste-paper drives.—*Science News Letter*, April 25, 1942.

HISTORY OF MEDICINE IN MINNESOTA

HISTORY OF THE MINNESOTA STATE MEDICAL SOCIETY

By ARTHUR S. HAMILTON, M.D.

Minneapolis, Minnesota

(Continued from April issue.)

Sixth Annual Meeting

The sixth annual meeting of the Minnesota State Medical Society was held in the Grand Army Hall, Saint Paul, on February 3 and 4, 1874, with Dr. W. W. Sweney presiding and forty-five members present.

In his opening address, Dr. Sweney referred to the death of Drs. Noyes, Smith, Chance, Jones, Etheridge, Bingham, Willey and Reiner, and urged that the Society take steps to recommend the establishment of a National Department of Public Health. He also urged the Society to take final action on the rights of women to become members.

Dr. T. T. Mann requested that the Committee on the Influence which the External Aspects of Nature Exercise upon the Imagination and Understanding of Man be continued another year, and this was granted.

No official mention is made of the omission of the semi-annual meeting of 1874, but since previous to the adjournment of the meeting of February 3, 1874, the Society moved to adjourn until the first Tuesday in February, 1875, it must be assumed that the semi-annual meeting was omitted intentionally.

Seventh Annual Meeting

The seventh annual meeting of the Minnesota State Medical Society was held in the Supreme Court Room, Saint Paul, on February 2 and 3, 1875, with Dr. N. B. Hill in the chair, and forty-five members present.

Dr. Hill referred to the death of Drs. Potts, Richardson, Grant and Ames, and gave the following extract from a Minneapolis paper, printed at the time of Dr. Ames' death: "Dr. Ames was one of the most upright citizens that ever lived. He was one of the most temperate and correct men in all his personal habits. He was methodical in the extreme, jotting down in his private diary the principal events of his own life, and those of the city and state around him."

Dr. Hill also referred to the improvement in the state law dealing with post-mortem examinations, and the question of recognizing the right of women to membership in the State Society.

On account of the serious illness of Dr. Hill, which came in the form of a stroke of apoplexy on the morning of the meeting, the vice president, Dr. A. B. Stuart, became presiding officer.

The Committee on New Members submitted a list of applicants for admission, divided into two groups: those presenting diplomas, and those without. Those of one group, as having presented diplomas, were elected to membership.

Later in the meeting, eight additional new members were elected. It is not stated whether these men presented diplomas, but certain things in the context

suggest that they did not. Some are reported as graduates of a medical school and some are not.

Dr. Reynolds of Fergus Falls made application for membership, but this was not acted upon on the ground that his diploma was not presented, and no one was present who had any personal knowledge of him.

Amendments to the Constitution and By-Laws were adopted as seen in another chapter.

On motion, Dr. C. N. Hewitt was called upon to read the annual address of the president, Dr. N. B. Hill. Before reading the address, Dr. Hewitt explained that when he had been in Minneapolis a week previously, he had taken tea with Dr. Hill, who had then shown him the address, and had stated he was anxious to have it received by the Society, as he thought it would be the last effort of this kind he would ever make. Consequently, when Dr. Hewitt saw the manuscript in Dr. Hill's pocket at the time of his stroke, he had taken it out and ventured to present it to the Society.

Dr. Hill's closing address appears in the Transactions for 1875, and is a notable paper, calling attention to many practical points in the practice of our profession, and urging physicians to a higher moral and professional plane of living. He recommended the continuance of the registration of all the regular practitioners in the state, as the only means the public has of distinguishing between the properly qualified practitioners and the mere pretender. Attention was called to the unsatisfactory situation existing in medico-legal matters (unfortunately still existing), and the appointment of an impartial committee of three was urged to pass on all matters of expert testimony. The relation of physicians to public health problems, and the importance of prevention as against cure in the matter of disease was stressed.

At this meeting, the Committee on the Influence which the External Aspects of Nature Exercise upon the Imagination and Understanding of Man, was discharged without report, and we are forever denied what might have been an interesting contribution to medicine.

The Transactions for 1875 contain a copy of the amended Constitution and By-Laws of the Minnesota State Medical Society and also the Code of Ethics of the American Medical Association.

Eighth Annual Meeting

The eighth annual meeting of the Minnesota State Medical Society was held in the Supreme Court Room, Saint Paul, February 1 and 2, 1876, under the presidency of Dr. J. H. Stewart, Dr. N. B. Hill having died with a stroke of apoplexy the preceding February. Sixty members were in attendance.

Dr. Stewart's address on "Professional Etiquette" was well received, and contained many wise admonitions and some highly moral suggestions, couched in rather flowery and sometimes witty language, as to the doctor's behavior.

The date of the annual meeting was changed from the first Tuesday in February to the third Tuesday in June.

The report of the Committee on Surgery contains three carefully studied and well-reported cases by Dr. Franklin Staples on "Plastic Operation of the Lower Lip"; "Fibroid Tumor of the Ischio-rectal Fossa," and "A Large Adenoid Tumor of the Neck."

In the report of the Committee on Obstetrics appear some notes by Dr. H. H. McMahon on "Obstetrical Observations Among the Chippewa Indians of Minnesota." At the time the notes were written, Dr. McMahon had been in active practice for one year and most of his practice was among the Chippewas, but

in that period he had not attended a single case of obstetrics among the Indians as, by their custom, male help is totally proscribed in such cases. During a residence of two years among the Indians he had not heard of a single case of difficult labor, but he had seen one case of puerperal mania. When seen, the woman was tied with a rope around her waist and was "raging wildly about the wigwam as far as the rope would permit." She had no medical treatment but ultimately fully recovered.

In one case of miscarriage, the doctor saw his patient about two hours afterward, and she was then on her knees in the wigwam washing the clothes. It was customary among the women to get up immediately after the child was born and go to work, or, if delivery occurred while on the march, as soon as it was over the mother picked up her pack and proceeded on her journey. Nevertheless, uterine disease of any kind was extremely rare among the Indians, and the doctor knew of no instance of prolapse of the uterus.

The old women usually attended the cases of childbirth, and went prepared with roots and herbs of some kind which they administered with a view of promoting uterine contractions. They had no knowledge of turning the child but Dr. McMahon had heard that there were cases where they dissected the fetus *in utero*, with no other instrument than the common scalping knife.

The Committee on Obstetrics also reported on the use of forceps as a means of compression of the fetal head as well as for traction purposes.

It is worthy of note that many of the reports on special subjects in medicine and surgery are given in much detail, refer at length to new procedures and serve much the same purpose as our present-day annual reviews on different aspects of medicine.

The Committee on Gynæcology reported three successful ovariectomies in Minnesota during the preceding year.

As chairman of the Committee on Necrology, Dr. O. J. Evans of Minneapolis reported on the death of Dr. N. B. Hill, the only death of the year.

Dr. Milligan and Dr. T. H. Evarts moved that the Minnesota State Medical Society urge upon the Legislature the necessity for the immediate organization of an inebriate asylum, it having come to their attention that the state senate had voted the disestablishment of the Minnesota State Inebriate Asylum established the preceding winter, and the House was strongly urged to nonconcur in the action of the Senate.

The delegates elected to the International Medical Congress to be held at the Centennial Exposition in Philadelphia were: Dr. A. B. Stuart from the First Congressional District; Dr. C. N. Hewitt, from the Second Congressional District; Dr. C. E. Smith, from the Third Congressional District.

Frequent reference is made in medical articles of this period to laudable pus, and there is also considerable discussion on the diagnosis of typhilitis and perityphilitis.

Ninth Annual Meeting

The ninth annual meeting of the Minnesota State Medical Society was held in the Senate Chamber at Saint Paul on June 19 and 20, 1877. Dr. F. H. Milligan presided and sixty-four members were present. Dr. Milligan urged compulsory vaccination; a committee to examine all persons desiring to become druggists or apothecaries, and that suitable provision be made by the United States for the families of the discoverers of anesthesia.

Dr. Milligan's presidential address was entitled "What Has the Science of Medicine and Surgery Done to Benefit Mankind?"

Dr. Staples presented a paper on carcinomatous infections and illustrated it with crayon sketches, photographs and pathological specimens. It is noteworthy that Dr. Staples' prize essay in a previous contribution was illustrated by drawings, the first of which I have found any record in the Society.

Dr. Hewitt urged the Society to aid in practical temperance reform, and asked that a committee of three be appointed whose duty it should be to collect facts bearing upon the use and abuse of alcohol in the state, to report next year and, if possible, to suggest a remedy. Drs. Dodge, Hewitt and Craft were appointed.

Tenth Annual Meeting

The tenth annual meeting of the Minnesota State Medical Society was held at St. Peter on Tuesday and Wednesday, June 18 and 19, 1878. Dr. Otis Ayer presided.

An unusually large number of new members were admitted.

Dr. Adams announced that Dr. J. H. Murphy had been elected as one of the vice presidents of the American Medical Association.

Reference was made to a resolution passed the preceding year on the subject of "Shortening in Fractures of the Long Bones," and to a paper on "Congenital Irregularities in the Length of the Lower Limbs." A committee consisting of Drs. J. H. Murphy, E. J. Davis, S. Blood, J. E. Bowers and S. B. Sheardown was appointed to collect statistics on the congenital difference in the length of lower limbs. Obviously, all this suggested unusual activity in malpractice suits.

A resolution passed by the Society earnestly urged the legislative assembly of the state to so amend existing laws as to require medical experts to hear fully the evidence on both sides of the suit before expressing an opinion, in the several courts of justice of this state.

Under the heading of "Reports on Surgery," Dr. A. B. Stuart of Santa Barbara, California, formerly of Winona, made some comment on the climate of California in relation to injuries and disease. It was his opinion that recent incised and lacerated wounds acted more kindly and healed more rapidly on the Pacific Coast than on the Atlantic Coast or in the Valley of the Mississippi. Broken bones, on the other hand, did not unite more rapidly than in the eastern states, and this disagreement in the healing power of the two tissues was referred to, but was accepted as beyond explanation, except that ozone, which Dr. Stuart calls vitalized oxygen, was considered more abundant on the Pacific than on the Atlantic Coast.

On Wednesday afternoon and after the final adjournment of the Society, its members were afforded an opportunity, through the kindness of Drs. Bartlett, Bowers and James of the Hospital for the Insane, of visiting that institution. Most of the Society had never previously visited the hospital. There was general approval of the admirable arrangement of the hospital, its surprising extent, and its excellent administration.

(To be continued in the June issue)

President's Letter

SICKNESS INSURANCE—THE MAY DAY PROCLAMATIONS

I

THE members of the State Association can be assured that even in this time of stress the question of sickness insurance is receiving careful consideration. Our Committee on Sickness Insurance under the chairmanship of Dr. A. W. Adson has been active. Certain members of the Committee attended the Conference on Medical Service Plans in Chicago last February; a report of this conference can be found in the April issue of MINNESOTA MEDICINE, page 290. Since then the Committee has formulated a program of study for the situation in Minnesota.

In general, there are four types of medical service plans: (1) the cash indemnification plan, which is chiefly exemplified by policies written by the commercial insurance companies in which claims are paid directly to the client; (2) the group clinic plan, and the consumers' group health plan in which different types of medical service are given directly to the patient for a certain fee per month; (3) the voluntary prepaid medical service plan sponsored by medical societies, and (4) the compulsory prepaid medical service which would be controlled by the state or federal government. It is estimated that about 6 per cent of the population of the United States, or approximately 7,000,000 persons, subscribes to sickness and accident insurance of the cash indemnity type. About 150,000 persons are served by means of group clinic and consumer plans, and 750,000 persons by voluntary prepaid medical service plans. Additional material on the various plans is being assembled for the meeting of the American Medical Association in June, at which time the permanent organization of prepaid medical service plans will be given consideration.

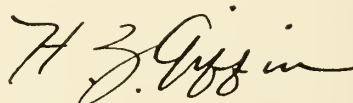
The Committee on Sickness Insurance of our State Association has appointed two subcommittees: one, to study the question in the urban areas and the other in the rural areas. It is felt that the problem may be different in these two areas. A subcommittee also was appointed to make a study of enabling acts which are now in force in various states and to consider the preparation of an act which might be suitable for Minnesota. The results of the studies of these subcommittees will be available at the time of the annual meeting in Duluth, and members of the House of Delegates should be prepared to enter into a discussion on this question.

Medical service plans of the type under consideration have nothing to do with the care of indigents. Subscribers to plans of this type can be only those who can afford to buy the service. Care of indigents is an independent topic. The most important questions to be decided concerning medical service plans are whether or not an enabling act should be sponsored, whether some service plan on a state-wide basis is advisable, and whether a satisfactory plan for this service can be found. The effects of such plans on the quality of medical care, the advancement of medical science and medical art, and the physician-patient relationship are larger aspects of the problem. Innumerable details must be considered; for example, x-ray and laboratory services, pediatric, obstetric and psychiatric care, refraction, the services of the specialist, and actuarial bases for estimating insurability. A conception of these can be obtained from the publications of the American Medical Association and The Actuarial Society of America.

II

The May Day proclamations of President Roosevelt and Governor Stassen on vaccination and immunization were a great help to physicians and public health officers. The campaign for vaccination and immunization in Minnesota has been, of course, a continuous campaign for these many years. It was recognized two years ago by the Council of the Minnesota State Medical Association that more active measures would be necessary, and since that time much has been accomplished through the activities of Dr. L. R. Critchfield and his Committee on Vaccination and Immunization. In spite of exceptional accomplishments at this time, the campaign will carry over into the summer and become again a continuous campaign on the part of the State Board of Health, the State Medical Association, and all the lay organizations affiliated in this work.

The necessity for vaccination of adults should be emphasized. Many adults have not been vaccinated for twenty-five years, whereas vaccination every six or seven years should be recommended. Adults hesitate to be vaccinated because of their favorable past experience. They do not realize that if we should have an epidemic of malignant smallpox as we had eighteen years ago, undoubtedly many of them would be susceptible.



President, Minnesota State Medical Association

EDITORIAL

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BUSINESS MANAGER
J. R. BRUCE

Volume 25 MAY, 1942 Number 5

CHEMOTHERAPY AND TUBERCULOSIS

THE progress made in recent years in the
elaboration of chemicals which have a specific
effect on pathogenic organisms constitutes, not
simply a milestone in medicine, but it is to be
hoped, the beginning of an epoch in the history
of therapeutics.

It is only through further research that new
chemicals can be discovered which will be more
effective and perhaps less toxic than those now
used clinically in the treatment of a number of
infections. Only by this means (our anti-vivisection
friends, please note) can new chemicals be

elaborated with specific therapeutic value in additional
infections.

Although the mortality in tuberculosis has been
agreeably reduced during the past twenty-five
years, the infection still is an important enemy
of man. The progress in combating the disease
has been made largely through sanatorium care
and segregation, building up nature's resistance
and the various newer operative procedures.

It would seem that the dream that some chemical
could be discovered which would have a
specific deleterious action on the tubercle bacillus,
in spite of its inaccessible location in the tubercle
is not beyond the realm of possibilities.

The paper entitled "Chemotherapy in Experimental
Tuberculosis" by William H. Feldman of
the Division of Experimental Medicine of the
Mayo Foundation, which appears in this issue of
the journal, reports the definite beneficial effects
of a new chemical called promin on induced
tuberculosis in guinea pigs. The next step will
be its clinical trial. The evidence of its value
experimentally is so striking that we welcome
the opportunity of presenting the report to our
readers.

Dr. Feldman was assistant professor of pathology
for ten years at the Colorado State College
before he joined the staff of investigators at the
Institute of Experimental Medicine of the Mayo
Foundation. The report constitutes an address
given under the John W. Bell Tuberculosis Lectureship
before the Hennepin County Medical
Society in February. The lectureship was established
in May, 1930, by the society in memory of
Dr. John W. Bell, a prominent internist of Minneapolis,
who died in 1933 after practicing in that city for
fifty-one years. The lectureship constitutes a continuation
of the fight against tuberculosis in which he was a
pioneer as a founder of the Hennepin County Tuberculosis
Association.

SISTER KENNY

SISTER KENNY has made a valuable contribution
to the treatment of poliomyelitis. After a thorough
trial of her method at General Hospital in Minneapolis
this is the conclusion

of the orthopedists who have observed the results.

During her work as a trained nurse in the bush country of Australia, Sister Kenny encountered a few children suffering from acute poliomyelitis. Not knowing the orthodox medical treatment of the acute disease, she made the observation that there was muscle spasm, tenderness and increased irritability in the unaffected muscles. She discovered that this could be overcome by the use of hot moist applications. The spasm relieved, deformities were less likely to occur and the paralyzed muscles, as they resumed at least a part of their function, were enabled to act with less interference.

Upon regaining medical contact, Sister Kenny immediately realized that her results were far better than those attained by the orthodox method of splinting for six weeks, and then more splinting. With pertinacity born of conviction she tried to convince the profession of the value of her discovery. She made little or no progress in her own country (a prophet is not without honor save in his own country) and it was not until she was given the opportunity to demonstrate her method in Minneapolis that she made any headway. It is said that medicos who come to scoff leave convinced.

Sister Kenny's treatment further includes the training of affected muscles. She speaks of mental alienation which, although difficult to explain, means the absence of voluntary muscle response due to the experience of pain in previously attempting such movement. Patient, passive and active muscle movement with retraining of muscle action within the ability of the disabled muscles, and coördination of muscle action are among the ends sought.

Sister Kenny's treatment is not a cure-all. It does not restore destroyed anterior horn cells. It does afford the individual a chance to use what muscles are able to function by preventing contractures. Braces and supports will still be needed in certain cases. Even orthopedic surgical procedures will still be needed in some cases. But that there will be less need for such treatment is the conviction of those who have observed the results of Sister Kenny's method.

Training courses for physicians, nurses and physical therapy technicians are being instituted so that wider use of this method will be possible.

WAR SESSIONS OF THE AMERICAN COLLEGE OF SURGEONS

LAST January the Regents of the American College of Surgeons voted to institute a series of twenty-five one-day sessions in different localities throughout the country for the benefit of the medical profession, these sessions to be devoted to the consideration of medicine and surgery in military service and civilian defense. Every state will be provided for, either singly or in combination.

On Friday, May 1, a meeting of the profession of the states of North Dakota, South Dakota and Minnesota was held at the Radisson Hotel in Minneapolis.

The program included the latest and most authentic information on war medicine and surgery, including such subjects as shock, the treatment of open wounds, burns and fractures.

Besides local surgeons, Dr. A. W. Adson of Rochester, Minnesota, spoke on "War Injuries of the Face and Skull." Fractures was the subject of Dr. Paul B. Magnuson of Northwestern University Medical School. Representatives of the Medical Department of the Army and Navy spoke on the organization and functions of their respective departments. Dr. Wallace Hunt of Omaha presented information on the doctor and hospital in civilian defense. The Procurement and Assignment Service was presented by Dean Diehl of Minneapolis.

These valuable meetings are being held for the benefit of the profession at large and some of the addresses will appear at an early date in MINNESOTA MEDICINE.

AMERICAN COLLEGE OF PHYSICIANS' MEETING

THE annual meeting of the American College of Physicians, held in Saint Paul last month, was well attended considering the fact that our country is at war. Some 1,377 physicians registered. The program reflected the present trend of medical interest and the effect of war on medical thought was evident. With nearly a dozen clinics taking place simultaneously each morning, and half as many panel discussions occupying each noon hour, a five-ring circus would have been infinitely easier to follow.

With the world as a battleground, the profession has suddenly become conscious of the inadequacy of medical training in this country in

tropical medicine. Already our young men are in the tropics and thousands more will follow them. They will encounter diseases against which white men have poor resistance. Medical officers will be confronted with problems of sanitation, vital for the preservation of the health of our soldiers.

Vaccination against smallpox, typhoid and tetanus is routine. For troops designated for certain disease infested areas, additional vaccination will be provided. But for such diseases as malaria, amebic and bacillary dysentery, cholera, typhus and plague, sanitary methods must be relied upon, if our fighting units are to be kept fit. The experience of our forces on the Bataan Peninsula has demonstrated what tropical disease can do to troops. And after the war the scene is set, even in Minnesota, with the known presence of the anopheles mosquito in our river valleys for the spread of malaria of virulent type from returned infected soldiers. There is a great need of concentration on the subject of tropical disease in our medical schools, as well as among physicians in army and civilian practice.

Aviation medicine was touched upon at the meeting of the College. Many were disappointed that the war prevented Captain Poppen and Major Armstrong from attending and presenting their addresses on this subject. More has to be learned concerning the effect of sudden changes in atmospheric pressure, oxygen tension and speed on human physiology.

Recent work on poliomyelitis was presented, which tends to show that this disease may be an alimentary rather than a respiratory infection. Doctors Paul and Trask of the Yale University School of Medicine presented the results of their investigations, for which they received the John Phillips Memorial Medal awarded by the College.

The endocrines received considerable attention. The whole subject is in the process of development and is somewhat controversial. The practical application of present knowledge derived from animal experimentation is still somewhat limited and the profession was warned against the useless and even dangerous use of some of the preparations.

Geriatrics received considerable attention on the program. The ever-increasing proportion of older people in the population will require an increasing proportion of medical services. Every

man at sixty is not ready physically or mentally to retire. Some have just reached their greatest efficiency with their judgment developed by experience, and while they have lost the elasticity of youth and are not material as airplane pilots, they are most valuable members of society. The routine retirement by industry on a basis of age attainment alone is deplorable.

At the Convocation 302 newly elected Fellows assented to the Fellowship Pledge of the College.

At this session Dr. Roger I. Lee of Boston retired from the presidency and Dr. James E. Paullin of Atlanta took over the leadership. Dr. Ernest E. Irons of Chicago is president-elect. Dr. Charles H. Cocke of Asheville, North Carolina, was elected first vice president; Dr. Henry R. Carstens of Detroit, second vice president, and Dr. A. Comingo Griffith of Kansas City, Missouri, third vice president. Dr. W. D. Stroud and Dr. George Morris Piersol, both of Philadelphia, were reelected treasurer and secretary-general, respectively. The session will be held in Philadelphia in 1943.

BUY WAR BONDS

AMERICA today needs the coöperation of every citizen—the man in uniform, the worker on a production line, the professional man, the woman in the home. Those of us in medicine are well aware of our obligation to the nation. We are willing and eager to provide the best of our professional service to the armed and civilian forces abroad and at home. We will share also the responsibility of providing money for the greatest war machine America has ever known. There must be no fiscal barrier in our war effort.

We are paying higher taxes than ever before, it is true. But increased tax revenues will not meet the annual costs of war. The Government can secure a part of the money from banks and other lending agencies, but extensive borrowing from these sources contributes to inflation. To borrow the money, yet to avoid the inflation threat, the Government asks for loans from all Americans through the purchase of United States Savings Bonds. By investing our money in the nation's war securities we build toward our own future security.

There are registered, interest-bearing bonds for us as individuals and for all medical associations. Series E Bonds are the "People's Bonds" which can be purchased only by individuals. The smallest costs \$18.75 and pays \$25 at the end of ten years—a 33⅓ per cent increase in value. Series F Bonds are also appreciation bonds, but

(Continued on Page 422)

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

Minnesota State Medical Association

George Earl, M.D., Chairman

ENROLLMENT FORMS ARRIVE

The long-awaited Medical Enrollment Form from the Procurement and Assignment Service is at last off the government printing presses. It arrived in the offices of Minnesota doctors April 22.

This is the form which is designed to put every doctor in the United States in the service of his country, to be used wherever he will be most valuable.

Each physician who fills it out and returns it to the Executive Officer of the Procurement and Assignment Service will receive a certificate and lapel button to indicate that he is ready to meet his country's need. If he remains at home, it will be because he is needed at home. At the same time he stands ready to serve in any essential civilian activity as well as in the armed forces, if the agency calls him.

The questionnaire and enrollment forms previously returned to the American Medical Association and to the Procurement and Assignment Service are now being utilized to meet requests coming in daily from the armed forces and other agencies. Names selected from these forms are sent to state procurement committees and through them, to local county committees for information on availability.

All Should Fill Them Out

Future needs for both military and civilian services will all be met through the Procurement and Assignment Agency and the new forms will be used in the same fashion. All are requested to fill them out including those who filled out the previous one from which selections are now being made. The additional information, it is pointed out in the letter from Dr. Frank Lahey, president of the American Medical Association, which accompanies the form, will bring up to date the facts necessary to place each medical man in the country in the work for which he is best qualified.

Minnesota's record for returning the first American Medical Association questionnaire was close to the top. Officials are confident that the response to the new questionnaire will be equally prompt and satisfactory.

ATTENDANCE AT MEDICAL MEETINGS

Physicians can be divided into two great groups according to Dr. Henry A. Christian of New York in a message mailed recently to members of the American College of Physicians. These groups comprise those who are learning and those who are forgetting, those who each year know more and those who each year know less. There seems to be no third group, he says, no group that remains stationary.

Dr. Christian's message was sent to stimulate attendance at the Physicians' meeting in St. Paul but applies with equal point to attendance at the 89th Annual Meeting of the Minnesota State Medical Association in Duluth. The state meeting is scheduled for June 29, 30, and July 1 at the Duluth Armory and, as always, it will be one of the most important Northwest medical gatherings of the year. Like the meeting of the College, this also is a chance to increase in knowledge.

"A few physicians increase in knowledge from within and grow from their own doing," Dr. Christian says. "These are innate investigators. The rank and file require outside help to grow and to progress. Books, meetings, discussions, teachers are our armamentarium for progress. Like the spring tonic of past days, all of us need some of this medicine, at least annually, better if it comes more frequently. A large majority of physicians know of their need and seek treatment.

Knowledge Not Static

"Things in nature rarely are static; they increase or they decrease; they grow or they decay;

they progress or they retrogress. Man's education in many respects resembles things of nature; rarely is it static. When knowledge does not increase, almost always it decreases. Physicians should remember this and make every effort to keep out of the static state and on the side of increase of growth, progress.

"Contact with colleagues eager to learn, listening to discussion by those capable of teaching, witnessing demonstrations and clinics, seeing scientific exhibits lead to more reading and better observation of patients. Herein lies medical progress."

The meeting of the Minnesota State Medical Association provides just these opportunities. Attendance at this meeting is a potent way for a physician to get himself out of the group of those who each year know less. The stimulus received from attendance at a medical meeting where men eminent in the profession speak lasts long after the meeting is over.

TROUBLE IN NEW YORK

Physicians who secure for themselves exclusive privileges under special legislation for the organization and operation of prepayment plans for medical service may find themselves in an embarrassing and difficult position if the plans they start are not successful.

The preliminary report recently issued by the Superintendent of Insurance of New York State finds that progress of the non-profit indemnity corporations (controlled and administered by physicians) has been unsatisfactory in New York for example. His department feels, he says, that a modification in the law which permits medical organizations, only, to operate plans for medical service, is needed.

As a result a bill has already been introduced at the 1942 session of the New York State Legislature which would permit hospital corporations to supplement contracts for hospital service by furnishing provision of indemnity against physicians' fees and obstetrical care.

Here, in part, is what the Superintendent of Insurance has to say about the matter:

"Progress Unsatisfactory"

"Although progress made by the hospital service corporations has been satisfactory, that of the non-profit medical indemnity corporations has

been discouraging, particularly in the New York City area. One received a license during 1941 which brought the total of such licensed corporations to five. Three of these are in the metropolitan area, one in Buffalo and one in Utica. Permits to solicit subscribers have been issued to two additional corporations, both of which are located in the metropolitan area. At the end of 1941, the outstanding contracts numbered less than 10,000.

"The Department has recognized from the outset that for many of these plans to be successful they must have substantial support of the medical profession. In Buffalo and Utica the doctors in general have supported the plans and this may account to some extent for the greater progress they have made. In the metropolitan area the Medical Expense Fund of New York, Inc., is the only one to date which has received any substantial backing from the medical profession. Inasmuch as that corporation did not receive its license until August, 1941, sufficient time has not yet elapsed to ascertain how successful it will be.

"Premium is Deterrent"

"The sponsors of the plans have underestimated the time and money that is required in developing and in adequately bringing this type of insurance coverage to the attention of the public. It is now generally understood that these plans will not sell themselves. There are indications that the amount of premium charged is deterrent to the sale. It must be recognized, however, that the doctors to join in a plan must have some reasonable assurance of receiving a reasonable return for their services. To provide coverage at a fee which is attractive to the public on the one hand, and is acceptable to the doctors on the other does offer a real problem. It is undoubtedly true that persons in poor financial circumstances could not afford to pay the subscription fees charged by most of these plans. It is frequently stated by the medical profession that they are willing to treat even free of charge those who are unable to pay, but that they do not feel they should be called upon to furnish for an inadequate amount care to those who can afford to pay. It is to meet this situation in part that one of the plans provides for a graded scale of fees to be paid by the subscribers in accordance

with their income, although the services received would be the same for everyone.

Appeal of Surgical Benefits

"A greater appeal seems to exist for surgical benefits rather than for general medical coverage. This is due perhaps to the possibility of being confronted with much more substantial bills for surgical services than for general medical expense. It is understood that the plans contemplate experimenting to a greater extent in this field. To facilitate the extension of surgical benefits it has been urged that an existing hospital plan which has the minimum surplus of \$150,000 required of newly organized mutual accident and health companies could be given an additional power of including surgical benefits in its subscribers' contracts, such benefits to be graded according to a fixed schedule of surgical operations. This schedule would represent the maximum payments by the plan at any time and the contract would not interfere in the relations between the surgeon and the patient since the contract would be one of indemnity rather than service. Where the charter powers were so enlarged the law might provide for some representation by participating surgeons on the board of directors of the particular hospital plan. The Department feels that a modification of the law granting this additional power would be proper and desirable in order to permit further experimentation as present methods do not seem to be meeting the immediate problem of medical and surgical care for a substantial proportion of the population."

Step Toward Lay Control

Officers of the Medical Expense Fund of New York are rightly disturbed by the situation. They see that passage of the bill now in the legislature, known as the Hampton Bill, would open the way for the practice of medicine by hospitals, with hospital insurance corporations in control of rates, physicians' fees and solicitation of public participation from all economic levels . . . a long step toward lay control of medicine and the end of private practice, they declare.

They see, also, that the position of the Insurance Department is reasonable. They themselves have acknowledged the need by their experiments with prepayment service. They have also taken steps to prevent others from stepping in where they fail.

"If the medical profession does not have a sufficient interest in the promotion of voluntary cash indemnity insurance," they point out in a recent bulletin on the subject, "then the Insurance Department wants to give the hospital plans the opportunity to make a success of it . . . to bring about a satisfactory participation of both the public and the profession.

"... If We Fail"

"Eight months remain," they point out to their physician members, "in which we must promote voluntary non-profit cash indemnity insurance to success comparable with hospital service insurance or the opportunity of control over medical insurance will pass from our hands. The 1943 session of the Legislature will surely pass the Hampton bill if we fail."

The moral in all this is clear. Medical organizations must be sure of their ground and their plan must be as sound as they can make it, before they ask for exclusive privileges from the Legislature. After that they must promote their plans with the utmost vigor. If success is possible, they must be successful because others will be waiting to push their claims and the legislature will not be likely to turn a deaf ear to them if the doctors fail.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. Du Bois, M.D., Secretary

Hutchinson Osteopath Pleads Guilty to Abortion

Re: State of Minnesota vs. Solon L. Leonard
On March 30, 1942, Solon L. Leonard, sixty years of age, a duly licensed osteopath of Hutchinson, Minnesota, entered a plea of guilty in the District Court of McLeod County, to an information charging him with the crime of abortion. The defendant was sentenced by the Hon. Joseph J. Moriarty, Judge of the District Court, to a term of not to exceed four years in the State Prison at Stillwater, and was placed on probation. Prior to suspending the sentence, the defendant and his attorney stated to the Court that Leonard would not re-open his office in Hutchinson, would make immediate arrangements to dispose of his home, and would leave the community to live elsewhere.

The defendant was arrested on March 25, 1942, following an investigation by Mr. Frank Broderius, Chief of Police of Hutchinson; Mr. William O. McNelly, County Attorney of McLeod County, and the State Board of Medical Examiners. The defendant had been under suspicion for some time, and in the instant case, had performed a criminal abortion on March 19, 1942, on an eighteen-year-old married girl who resided in Renville County. The defendant admitted to Chief Broderius and a representative of the Minnesota State

(Continued on Page 422)

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

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THE PREVENTION OF HEAT SICKNESS

HEAT sickness can be prevented by a few simple rules of diet, proper living habits, and the replenishment of salt lost from the body through excessive perspiration. In most cases, the program of prevention of heat sickness ends with the use of sodium chloride tablets, plain or combined with sugar, which are provided to the workers in convenient dispensing containers. This is an essential part in its prophylaxis but the individuals who do their work in abnormally hot or humid environment as well as the entire population exposed to very hot weather must be educated to a twenty-four hour program of prevention of heat sickness.

Diet Important

First consider food. This should consist of an easily digested high carbohydrate, low fat diet with an adequate amount of beverage such as water, fresh fruit juices, milk, carbonated drinks, and possibly tea or coffee. Strong alcoholic drinks should never be used in hot weather. Beer and ale are permissible in small quantities. Frequent small drinks of beverages are safer than a large amount at one time which leaves the individual bloated and frequently causes nausea or vomiting on resumption of work. Ice cold drinks must be sipped slowly. Fried foods, canned or over-ripe corn, canned meats, or heavily spiced foods such as sausage are difficult to digest and predispose the hot weather worker to gastro-intestinal complaints. The large meal should come after returning home from work; a light, easily-digested but nourishing meal before work and at lunch.

Haste Should Be Eliminated

Living habits should provide some recreational facilities such as gardening, reading, fishing, or other light activity but must not encroach on the workman's seven to nine hours of sleep. A cool shower or tub bath before going to work and

repeated on completion of work does much to minimize the effects of a hot job or warm weather. Sufficient time must be allowed for going to work to avoid running or undue excitement in getting there on time. Once on the job the worker should continue to be calm and should use the minimum effort compatible with efficient handling of his work. Avoid unnecessary running. Eliminate all non-productive motions.

Use of Salt

The use of salt tablets should be limited to 10 grains every two hours. Some men will tolerate more than that but the percentage of gastric upsets is high. More than 10 grains every two hours should rarely be necessary in the most extreme heat tolerated by man. The actual salt loss during working hours may exceed this amount but should be supplemented by the regular dietary intake. Added energy is sometimes provided through the addition of invert sugar to the tablet which also increases its palatability. Some individuals who do not tolerate the plain salt well can use the sugar and salt combination or an enteric-coated tablet. In the latter case sufficient time should be allowed from ingestion until the salt is needed by the body to permit the dissolution of the coating and absorption of the salt. Such tablets have been recovered in the stool with only part of the coating dissolved. This should be blamed to the type of coating used.

First Aid for Heat Shock

Men employed at glass or metal furnaces, in rolling mills, open pit mines or in similarly hot environment should be instructed in the recognition of heat shock and heat retention as shown with the use of a thermometer. Through the prompt first aid treatment before medical aid arrives the patient may avoid serious injury.

—L. S. ARLING, M.D.

Minnesota State Medical Association

ROSTER 1942

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CARVER COUNTY

M. B. HEBEISEN, M.D.....Chaska
H. D. NAGEL, M.D.....Waconia
B. H. SIMONS, M.D.....Chaska

CASS COUNTY

O. F. RINGLE, M.D.....Walker
G. H. ADKINS, M.D.....Pine River
C. E. JOHNSON, M.D.....Pine River

CHIPPEWA COUNTY

H. T. FOSHAGER, M.D.....Clara City
L. G. SMITH, M.D.....Montevideo
F. M. BURNS, M.D.....Milan

CHISAGO COUNTY

J. E. HALPIN, M.D.....Rush City
A. E. HOLMES, M.D.....Rush City
R. G. SWENSEN, M.D.....North Branch

CLAY COUNTY

C. W. SIMISON, M.D.....Hawley
F. A. THYSELL, M.D.....Moorhead
S. B. SEITZ, M.D.....Barnesville

CLEARWATER COUNTY

L. J. LARSON, M.D.....Bagley
R. D. DAVIS, M.D.....Clearbrook

COTTONWOOD COUNTY

H. C. STRATTE, M.D.....Windom
E. S. SCHUTZ, M.D.....Mountain Lake
L. E. SJOSTROM, M.D.....Storden

CROW WING COUNTY

V. E. QUANSTROM, M.D.....Brainerd
G. I. BADEAUX, M.D.....Brainerd

DAKOTA COUNTY

L. H. HEINZ, M.D.....Hastings
L. R. PECK, M.D.....Hastings
G. F. WALTER, M.D.....Farmington

DODGE COUNTY

C. E. BIGELOW, M.D.....Dodge Center
H. R. BAKER, M.D.....Hayfield
W. C. JUMP, M.D.....Kasson

DOUGLAS COUNTY

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L. F. WASSON, M.D.....Alexandria
A. R. BLAKE, M.D.....Osakis

FARIBAULT COUNTY

W. C. CHAMBERS, M.D.....Blue Earth
T. E. HAVEL, M.D.....Blue Earth
J. L. MILLS, M.D.....Winnebago

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J. E. WESTRUP, M.D.....Lanesboro
L. W. CLARK, M.D.....Spring Valley

FREEBORN COUNTY

C. F. PALMER, M.D.....Albert Lea
A. GULLIXSON, M.D.....Albert Lea
P. M. GAMBLE, M.D.....Albert Lea
F. G. FOLKEN, M.D.....Albert Lea

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E. H. JUEERS, M.D.....Red Wing
M. W. SMITH, M.D.....Red Wing

GRANT COUNTY

J. T. LELAND, M.D.....Herman
E. T. REEVE, M.D.....Elbow Lake
A. M. RANDALL, M.D.....Ashby

RURAL HENNEPIN COUNTY

T. J. DEVEREAUX, M.D.....Wayzata
M. H. SEIFERT, M.D.....Excelsior
F. J. KUCERA, M.D.....Hopkins

HOUSTON COUNTY

J. W. HELLAND, M.D.....Spring Grove
G. B. Belote, M.D.....Caledonia
L. K. ONSGARD, M.D.....Houston

HUBBARD COUNTY

W. W. HIGGS, M.D.....Park Rapids
D. M. HOUSTON, M.D.....Park Rapids

ISANTI COUNTY

L. H. HEDENSTROM, M.D.....Cambridge
W. T. NYGREN, M.D.....Braham

ITASCA COUNTY

J. L. McLEOD, M.D.....Grand Rapids
R. ANDERSON, M.D.....Deer River
E. K. ROWLES, M.D.....Coleraine

JACKSON COUNTY

A. G. CHADBOURN, M.D.....Heron Lake
W. S. HITCHINGS, M.D.....Lakefield
W. H. HALLORAN, M.D.....Jackson

KANABEC COUNTY

C. S. BOSSERT, M.D.....Mora
A. A. PETERSON, M.D.....Mora
W. F. NORDMAN, M.D.....Mora

KANDIYOHI COUNTY

D. L. JACOBS, M.D.....Willmar
G. U. Y. FREDERICKSON, M.D.....Willmar
R. K. PROESCHEL, M.D.....Willmar

KITTSOON COUNTY

A. W. SHALEEN, M.D.....Hallock
F. F. STOCKING, M.D.....Hallock
A. S. BERLIN, M.D.....Hallock

KOOCHICHING COUNTY

M. E. WITHROW, M.D.....International Falls
C. CRAIG, M.D.....International Falls
R. D. HANOVER, M.D.....Little Fork

LAC QUI PARLE COUNTY

M. Westby, M.D.....Madison
C. M. JOHNSON, M.D.....Dawson
W. M. LEE, M.D.....Madison

LAKE COUNTY

E. P. CHRISTENSON, M.D.....Two Harbors
P. B. MONROE, M.D.....Two Harbors
R. F. MUELLER, M.D.....Two Harbors

LINCOLN COUNTY

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P. C. JOHNSON, M.D.....Tyler

LYON COUNTY

B. C. FORD, M.D.....Marshall
A. D. HOIDALE, M.D.....Tracy
E. T. SANDERSON, M.D.....Minneota

ROSTER

MAHNOMEN COUNTY

J. J. EDERER, M.D. Mahanomen

MARSHALL COUNTY

O. F. MELLBY, M.D. Thief River Falls
I. G. WILTRUT, M.D. Oslo
C. H. HOLSTROM, M.D. Warren

MARTIN COUNTY

R. C. FARRISH, M.D. Sherburn
H. B. BAILEY, M.D. Fairmont
R. C. HUNT, M.D. Fairmont

MCLEOD COUNTY

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E. W. LIPPMANN, M.D. Hutchinson

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J. Y. FEINSTEIN, M.D. Grove City

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H. C. COONEY, M.D. Princeton
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C. L. SHEEDY, M.D. Austin
P. C. LECK, M.D. Austin

MURRAY COUNTY

L. A. WILLIAMS, M.D. Slayton
B. M. STEVENSON, M.D. Fulda
J. T. LARSON, M.D. Lake Wilson

NICOLLET COUNTY

M. H. LARSON, M.D. Nicollet
F. P. STRATHERN, M.D. St. Peter
H. J. NILSON, M.D. North Mankato

NOBLES COUNTY

J. D. WALLER, M.D. Wilmont
B. O. MORK, SR., M.D. Worthington
E. A. KILBRIDE, M.D. Worthington

NORMAN COUNTY

E. HAUGSETH, M.D. Twin Valley
ESKIL ERICKSON, M.D. Halstad
G. W. BOHL, M.D. Ada

OLMSTED COUNTY

M. W. BINGER, M.D. Rochester
F. D. SMITH, M.D. Rochester
C. B. MCKAIG, M.D. Pine Island

OTTER TAIL COUNTY

A. J. LEWIS, M.D. Henning
W. L. BURNAP, M.D. Fergus Falls
G. C. JACOBS, M.D. Fergus Falls

PENNINGTON COUNTY

O. F. MELLBY, M.D. Thief River Falls
O. G. LYNDE, M.D. Thief River Falls
H. K. HELSETH, M.D. Thief River Falls

PINE COUNTY

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G. E. BROWN, M.D. Pine City
MANUEL BROWNSTONE, M.D. Sandstone

PIPESTONE COUNTY

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J. G. LOHMANN, M.D. Jasper

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E. A. EBERLIN, M.D. Glenwood
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R. A. PETERSON, M.D. Vesta
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RENVILLE COUNTY

J. A. COSGRIFF, M.D. Olivia
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J. DORDAL, M.D. Sacred Heart

RICE COUNTY

F. R. HUXLEY, M.D. Faribault
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WARREN WILSON, M.D. Northfield

ROCK COUNTY

C. L. SHERMAN, M.D. Luverne
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F. W. BOFENKAMP, M.D. Luverne

ROSEAU COUNTY

J. L. DELMORE, M.D. Roseau
N. M. LEITCH, M.D. Warroad
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P. G. BOMAN, M.D. Duluth
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STEELE COUNTY

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STEVENS COUNTY

E. T. FITZGERALD, M.D. Morris
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SWIFT COUNTY

J. M. ARNSON, M.D. Benson
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M. E. MOSBY, M.D. Long Prairie
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J. M. COOK, M.D. Staples

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C. F. EWING, M.D. Wheaton
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C. G. OCHSNER, M.D. Wabasha
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L. T. DAVIS, M.D. Wadena
H. G. BOSLAND, M.D. Verndale
C. H. PIERCE, M.D. Wadena

WASECA COUNTY

O. J. SWENSON, M.D. Waseca
G. H. OLDS, M.D. Waseca
R. O. SPITTLER, M.D. New Richland

WASHINGTON COUNTY

W. R. HUMPHREY, M.D. Stillwater
E. V. STRAND, M.D. Bayport
J. W. STUHR, M.D. Stillwater

WATONWAN COUNTY

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L. M. HAMMAR, M.D. Butterfield
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C. P. ROBBINS, M.D. Winona
E. E. CHRISTENSEN, M.D. Winona
L. I. YOUNGER, M.D. Winona

WRIGHT COUNTY

W. E. HART, M.D. Monticello
L. H. BENDIX, M.D. Annandale
T. J. CATLIN, M.D. Buffalo

YELLOW MEDICINE COUNTY

R. H. KATH, M.D. Wood Lake
L. J. MONSON, M.D. Canby
P. G. SCHMIDT, JR., M.D. Granite Falls

(No committees have been appointed in the following counties:
Cook, Lake of the Woods, Le Sueur, and Red Lake.)

Woman's Auxiliary to the Minnesota State Medical Association

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DISTRICT NO. 1

L. A. BUIE, M.D.....	Rochester
Counties—Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Rice, Steele, Wabasha, Winona.	

DISTRICT NO. 2

L. L. SOGGE, M.D.....	Windom
Counties—Cottonwood, Faribault, Jackson, Martin, Murray, Nobles, Pipestone, Rock, Watonwan.	

DISTRICT NO. 3

C. M. JOHNSON, M.D.....	Dawson
Counties—Big Stone, Brown, Chippewa, Kandiyohi, Lac Qui Parle, Lincoln, Lyon, Meeker, Pope, Redwood, Stevens, Swift, Traverse, Yellow Medicine.	

DISTRICT NO. 4

A. E. SOHMER, M.D.....	Mankato
Counties—Blue Earth, Carver, LeSueur, McLeod, Nicollet, Renville, Scott, Sibley, Waseca.	

DISTRICT NO. 5

E. M. JONES, M.D.....	St. Paul
Counties—Anoka, Chisago, Dakota, Isanti, Kanabec, Mille Lacs, Pine, Ramsey, Sherburne, Washington	

DISTRICT NO. 6

S. H. BAXTER, M.D.....	Minneapolis
Counties—Hennepin, Wright	

DISTRICT NO. 7

E. J. SIMONS, M.D.....	Swanville
Counties—Aitkin, Beltrami, Benton, Cass, Clearwater, Crow Wing, Hubbard, Koochiching, Morrison, Stearns, Todd, Wadena.	

DISTRICT NO. 8

W. L. BURNAP, M.D.....	Fergus Falls
Counties—Becker, Clay, Douglas, Grant, Kittson, Lake of the Woods, Mahnomon, Marshall, Norman, Otter Tail, Pennington, Polk, Red Lake, Roseau, Wilkin.	

DISTRICT NO. 9

F. J. ELIAS, M.D.....	Duluth
Counties—Carlton, Cook, Itasca, Lake, St. Louis.	

MINNESOTA STATE MEDICAL ASSOCIATION COUNTY SOCIETY ROSTER

Key to Symbols: *Deceased; †Affiliate or Associate; ‡In Service

BLUE EARTH COUNTY MEDICAL SOCIETY

Regular meetings, last Monday of each month except June, July and August
Annual meeting in December
Number of Members: 38

President
Troost, H. B. Mankato

Secretary
Liedloff, A. G. Mankato

Andrews, R. N. Mankato
Benham, E. W. Mankato
Black, William Mankato
Butzer, J. A. Mankato
Dahl, G. A. Mankato
Denman, A. V. Mankato
Edwards, R. T. Elysian
Franchere, F. W. Lake Crystal
Fugina, G. R. Mankato

†Gunlaugson, F. G. Mankato
Haes, J. E. Vernon Center
Hankerson, R. G. Minnesota Lake
Hassett, R. G. Mankato
Howard, M. I. Mankato
Huffington, H. L. Mankato
Jones, O. H. Madison Lake
Juliar, R. O. St. Clair
Kaufman, W. B. Mankato
Kearney, R. W. Mankato
Kemp, A. F. Mankato
Koenigsberger, Charles Mankato
Liedloff, A. G. Mankato
Lloyd, H. J. Mankato

Luck, Hilda Mankato
Macbeth, J. L. St. Clair
Mickelson, J. C. Mankato
Miller, V. I. Mankato
Morgan, H. O. Amboy
Penn, G. E. Mankato
†Samuelson, L. G. Mankato
Schlesselman, J. T. Mankato
Schmidt, P. A. Good Thunder
Sohmer, A. E. Mankato
Stillwell, W. C. Mankato
Troost, H. B. Mankato
Vezina, J. C. Mapleton
Wentworth, A. J. Mankato
Williams, H. O. Lake Crystal

BLUE EARTH VALLEY MEDICAL SOCIETY

Faribault and Martin Counties
Regular meetings, first Thursday of January, April, June and November
Annual meeting, first Thursday in November
Number of Members: 37

President
Heimark, J. J. Fairmont

Secretary
Mills, J. L. Winnebago

Bailey, H. B. Fairmont
Bailey, R. B. Fairmont
Barr, W. H. Wells
Bergen, C. T. Bricelyn
Blanchard, H. G. Fairmont
Boysen, Herbert Madelia
Chambers, W. C. Blue Earth
Cooper, M. D. Winnebago
Demo, P. W. Wells

Farrish, R. C. Sherburn
Fisher, I. I. Ceylon
Gardner, V. H. Fairmont
Havel, T. E. Blue Earth
Heimark, J. J. Fairmont
Henderson, A. J. Kiester
†Holm, P. F. Wells
Hunt, R. C. Fairmont
Hunt, R. C. Fairmont
Hunte, A. S. Globe, Ariz.
Johnson, D. W. Fairmont
†Johnson, H. P. Fairmont
Krause, C. W. Fairmont
Luedtke, G. H. Fairmont

MacMillan, D. G. Triumph
McGroarty, J. J. Easton
Mills, J. L. Winnebago
Parsons, R. L. Monterey
Raymond, J. H. Canby
Rowe, W. H. Fairmont
Russ, H. H. Blue Earth
Sommer, A. W. Eimore
†Sybilrud, H. W. Bricelyn
Thayer, E. A. Truman
Vaughan, V. M. Truman
Virnig, M. P. Wells
Wilson, C. E. Blue Earth
Zemke, E. E. Fairmont

CAMP RELEASE DISTRICT MEDICAL SOCIETY

Chippewa, Lac Qui Parle and Yellow Medicine Counties
Regular meetings monthly
Annual meeting, February
Number of Members: 25

President
Hauge, M. I. Clarkfield

Secretary
Boody, G. J., Jr. Dawson

Bergh, L. N. Montevideo
Boody, G. J., Jr. Dawson
Burns, F. M. Milan
Burns, M. A. Milan
Foshager, H. T. Clara City

Hauge, M. I. Clarkfield
Holmberg, L. J. Canby
Hudec, E. R. Echo
Johnson, C. M. Dawson
†Johnson, V. M. Dawson
Jordan, L. S. Granite Falls
Kath, R. H. Wood Lake
Kaufman, W. C. Appleton
Lee, W. N. Madison
Lima, Ludvig. Montevideo

Minge, R. K. Clarkfield
Nelson, M. S. Granite Falls
Owens, W. A. Montevideo
Pertl, A. L. Canby
Roust, H. A. Montevideo
Sanderson, A. G. Granite Falls
Schmidt, P. G., Jr. Granite Falls
Smith, L. G. Montevideo
Westby, Magnus. Madison
Westby, Nels. Madison

CLAY-BECKER COUNTY MEDICAL SOCIETY

Regular meetings three times a year
Annual meeting, December
Number of Members: 23

President
Rice, H. G. Moorhead

Secretary
Ingebrigtsen, E. K. G. Moorhead

†Aborn, W. H. Hawley
Bottolfsen, B. T. Moorhead
Carman, J. E. Detroit Lakes
Duncan, J. W. Moorhead
Ellingson, A. R. Detroit Lakes

Gosslee, G. L. Moorhead
Hagen, O. J. Moorhead
Haight, G. G. Audubon
Hendrickson, R. R. Lake Park
Humphrey, E. W. Moorhead
Ingebrigtsen, E. K. G. Moorhead
Johnson, Olga H. Moorhead
Larsen, O. O. Detroit Lakes
Larson, Arnold. Detroit Lakes

Moberg, C. W. Detroit Lakes
Otto, H. C. Frazee
†Rice, H. G. Moorhead
Rutledge, L. H. Detroit Lakes
Seitz, S. B. Barnesville
Simison, Carl. Barnesville
Simison, C. W. Hawley
Thysell, F. A. Moorhead
Thysell, V. D. Hawley

DAKOTA COUNTY MEDICAL SOCIETY

Number of Members: 12

President
L. S. Burns. So. St. Paul

Secretary
A. H. Field. Farmington

Burns, L. S. So. St. Paul
Emond, A. J. Farmington
Field, A. H. Farmington
Heinz, Ivy B. Hastings

Heinz, L. H. Hastings
Sanford, J. A. Farmington
Walter, G. F. Farmington

EAST CENTRAL MINNESOTA MEDICAL SOCIETY

Anoka, Chisago, Isanti, Kanabec, Mille Lacs, Pine and Sherburne Counties
Regular meetings January, March, May, July, September and November
Annual meeting, November
Number of Members: 38

President
Roehlke, A. B. Elk River

Secretary
Arends, A. L. Cambridge

Arends, A. L. Cambridge
Blomberg, W. R. Princeton
Blumenthal, J. S. Columbia Heights
Bossert, C. S. Mora

Brink, D. M. New York, N. Y.
Brownstone, Manuel. Sandstone
Punker, B. W. Anoka
Callahan, F. F. Pokegama

ROSTER

Cooney, H. C.....Princeton
 †Dedolph, T. H.....Braham
 Dredge, H. P.....Sandstone
 Gardner, W. P.....Anoka
 Gavis, David.....Princeton
 Gray, R. C.....Cambridge
 Gully, R. J.....Cambridge
 Halpin, J. E.....Rush City
 Hedenstrom, L. H.....Cambridge
 Holmes, A. E.....Rush City

Johnson, A. R.....Isanti
 Kelsey, C. G.....Hinckley
 McBroom, D. E.....St. Paul
 Mork, A. H.....Anoka
 Mork, F. E.....Anoka
 Nordman, W. F.....Mora
 Nygren, W. T.....Braham
 Olson, L. M.....Chisago City
 Patterson, H. D.....Anoka
 Petersen, P. C.....Braham

Peterson, A. A.....Mora
 Roehlke, A. B.....Elk River
 Schlesselman, George.....Anoka
 Spurzem, R. J.....Anoka
 Stephan, E. L.....Hinckley
 †Stratte, A. K.....Pine City
 Swensen, R. G.....North Branch
 Tesch, G. H.....Elk River
 Vik, Melvin.....Onamia
 Whitney, R. A.....Cambridge

FREEBORN COUNTY MEDICAL SOCIETY

Regular meetings, Quarterly
 Annual meeting, December
 Number of Members: 24

President
 Calhoun, F. W.....Albert Lea
 Secretary
 Palmerton, E. S.....Albert Lea
 Barr, L. C.....Albert Lea
 †Branham, D. S.....Albert Lea
 Butturff, C. R.....Freeborn
 Calhoun, F. W.....Albert Lea
 Donovan, D. L.....Albert Lea

Folken, F. G.....Albert Lea
 Freeman, J. P.....Albert Lea
 Freligh, W. P.....Albert Lea
 Gamble, J. W.....Albert Lea
 Gamble, P. M.....Albert Lea
 Gullixson, A.....Albert Lea
 Kaasa, L. J.....Albert Lea
 Kamp, B. A.....Albert Lea
 Leopard, B. A.....Albert Lea

Neel, H. B.....Albert Lea
 Nesheim, M. O.....Emmons
 Palmer, C. F.....Albert Lea
 Palmer, W. L.....Albert Lea
 Palmerton, E. S.....Albert Lea
 Person, J. P.....Alden
 Prins, L. R.....Albert Lea
 Schultz, J. A.....Albert Lea
 Swanson, R. R.....Albert Lea
 Whitson, S. A.....Albert Lea

GOODHUE COUNTY MEDICAL SOCIETY

Regular meetings, none
 Annual meeting, December
 Number of Members: 22

President
 Steffens, L. A.....Red Wing
 Secretary
 Brusegard, J. F.....Red Wing
 Aanes, A. M.....Red Wing
 Anderson, S. H.....Red Wing
 Baldigo, E. M.....Red Wing
 Brusegard, J. F.....Red Wing

*Claydon, D. R.....Red Wing
 Claydon, L. E.....Red Wing
 Flom, M. G.....Zumbrota
 Graves, R. B.....Red Wing
 Hartnagel, G. F.....Red Wing
 Hedin, R. F.....Red Wing
 Johnson, A. E.....Red Wing
 †Johnson, M. R.....Red Wing
 Jones, A. W.....Red Wing
 Juers, E. H.....Red Wing

Kimmel, G. C.....Red Wing
 Liffbrig, W. W.....Goodhue
 †Mack, J. J.....St. Louis, Mo.
 McGuigan, H. T.....Red Wing
 Sherman, R. V.....Red Wing
 Smith, M. W.....Red Wing
 Steffens, L. A.....Red Wing
 Vaaler, T.....Cannon Falls
 Williams, M. R.....Cannon Falls

HENNEPIN COUNTY MEDICAL SOCIETY

Regular meetings, first Monday each month, October through May

Annual meeting, October
 Number of Members: 663

President
 Huenekens, E. J.....Minneapolis
 Secretary
 Jones, W. R.....Minneapolis
 Executive Secretary
 Mr. J. H. Baker.....Minneapolis
 Aagaard, G. N., Jr.....Minneapolis
 Abramson, Milton.....Minneapolis
 Adams, J. M.....Minneapolis
 Alexander, H. A.....Minneapolis
 Aling, C. A.....Minneapolis
 Aling, C. P.....Minneapolis
 Allen, H. W.....Minneapolis
 Allison, R. G.....Minneapolis
 Altnow, H. O.....Minneapolis
 Andersen, A. G.....Minneapolis
 Andersen, S. C.....Minneapolis
 Anderson, D. D.....Minneapolis
 †Anderson, E. D.....Minneapolis
 Anderson, E. R.....Minneapolis
 Anderson, F. J.....Minneapolis
 Anderson, J. K.....Minneapolis
 Anderson, K. W.....Minneapolis
 Anderson, P. A.....Minneapolis
 Anderson, U. S.....Minneapolis
 †Andreassen, E. C.....Minneapolis
 Andresen, K. D.....Minneapolis
 Andrews, R. S.....Minneapolis
 Andrus, F. C.....Minneapolis
 Annis, H. B.....Minneapolis
 Arey, S. L.....Excelsior
 Arlander, C. E.....Minneapolis
 Arling, L. S.....Minneapolis
 Arnold, Anna W.....Minneapolis
 Arnold, D. C.....Minneapolis
 Arvidson, C. G.....Minneapolis
 Aune, Martin.....Minneapolis
 Aurand, W. H.....Minneapolis
 Baken, M. P.....Minneapolis
 Baker, A. B.....Minneapolis
 Baker, A. T.....Minneapolis
 Baker, E. L.....Minneapolis
 Baker, Looe.....Minneapolis
 †Balkin, S. G.....Minneapolis
 †Barber, J. P.....Minneapolis
 †Barr, R. N.....St. Paul
 Barron, Moses.....Minneapolis
 Bass, G. W.....Minneapolis
 Baxter, S. H.....Minneapolis
 Bayard, H. F.....Minneapolis

†Beard, A. H.....Minneapolis
 Beckman, W. G.....Minneapolis
 Bedford, E. W.....Minneapolis
 †Bell, E. T.....Minneapolis
 †Belzer, M. S.....Minneapolis
 Benesh, L. A.....Minneapolis
 Benesh, N. G.....Minneapolis
 Benjamin, A. E.....Minneapolis
 †Benjamin, E. G.....Minneapolis
 †Benjamin, H. G.....Minneapolis
 Benn, F. G.....Minneapolis
 Berger, A. G.....Minneapolis
 †Bergh, G. S.....Minneapolis
 Berkwitz, N. J.....Minneapolis
 †Berman, Reuben.....Minneapolis
 Bessesen, A. N., Jr.....Minneapolis
 Bessesen, D. H.....Minneapolis
 Bessesen, W. A.....Minneapolis
 Blake, James.....Hopkins
 Blake, J. A.....Hopkins
 Blumstein, Alex.....Minneapolis
 Bockman, M. W. H.....Minneapolis
 Boehme, E. J.....Minneapolis
 Boehrer, J. J.....Minneapolis
 Boies, L. R.....Minneapolis
 Booth, A. E.....Minneapolis
 Boreen, C. A.....Minneapolis
 Borgeson, E. J.....Minneapolis
 Borman, C. N.....Minneapolis
 †Bouman, H. A. H.....Minneapolis
 Boynton, Ruth E.....Minneapolis
 Bratrud, A. F.....Minneapolis
 Brekke, H. J.....Minneapolis
 †Brown, E. D.....Paynesville
 Brutsch, G. C.....Minneapolis
 Bryant, F. L.....Minneapolis
 †Buchstein, H. F.....Minneapolis
 Bulkley, Kenneth.....Minneapolis
 Burlingame, D. A.....Minneapolis
 Butler, John.....Minneapolis
 Buzzelle, L. K.....Minneapolis
 Cable, M. L.....Minneapolis
 Cabot, V. S.....Minneapolis
 Cady, L. H.....Minneapolis
 Callerstom, G. W.....Minneapolis
 Cameron, Isabell L.....Minneapolis
 Camp, W. E.....Minneapolis
 Campbell, O. J.....Minneapolis
 Cardle, A. E.....Minneapolis
 Carey, J. B.....Minneapolis
 Carlson, Lawrence.....Minneapolis
 Carlson, L. T.....Minneapolis

Caron, R. P.....Minneapolis
 †Caspers, C. G.....Minneapolis
 †Cavanor, F. T.....Minneapolis
 †Challman, S. A.....Minneapolis
 Chesley, A. J.....Minneapolis
 Christenson, G. R.....Minneapolis
 Christianson, H. W.....Minneapolis
 †Clark, H. S.....Minneapolis
 Clay, L. B.....Minneapolis
 Cochran, R. F.....Minneapolis
 Cohen, S. S.....Oak Terrace
 Colp, E. A.....Robbinsdale
 Condit, W. H.....Minneapolis
 Cooperman, H. O.....Minneapolis
 Corbett, J. F.....Minneapolis
 Cornica, A. D.....Minneapolis
 Cranmer, R. R.....Minneapolis
 Cranston, R. W.....Minneapolis
 Creevy, C. D.....Minneapolis
 †Creighton, R. H.....Minneapolis
 Cumming, H. A.....Minneapolis
 Curtin, J. F.....Minneapolis
 Cutts, George.....Minneapolis
 Dady, E. E.....Minneapolis
 Dahl, E. O.....Minneapolis
 Dahl, J. A.....Minneapolis
 Daniel, D. H.....Minneapolis
 Daniel, L. M.....Minneapolis
 Davis, J. C.....Minneapolis
 del Plaine, C. W.....Minneapolis
 Devereaux, T. J.....Wayzata
 Diehl, H. S.....Minneapolis
 Diessner, H. D.....Minneapolis
 Dippel, A. L.....Minneapolis
 *Doering, R. E.....Minneapolis
 Dorge, R. I.....Minneapolis
 Dornblaser, H. B.....Minneapolis
 Dorsey, G. C.....Minneapolis
 Dowidat, R. W.....Minneapolis
 Doney, G. L.....Minneapolis
 Doyle, L. O.....Minneapolis
 Drake, C. R.....Minneapolis
 Drill, H. E.....Hopkins
 Duff, E. R.....Minneapolis
 Dukelow, D. A.....Minneapolis
 Dumas, A. G.....Minneapolis
 Dunlap, E. H.....Minneapolis
 Dunn, G. R.....Minneapolis
 Duryea, W. M.....Minneapolis
 †Dutton, C. E.....Minneapolis
 Dvorak, B. A.....Minneapolis
 Dwan, P. F.....Minneapolis

ROSTER

Dworsky, S. D.....Minneapolis
Ehrenberg, C. J.....Minneapolis
Ehrlich, S. P.....Minneapolis
Eich, Matthew.....Minneapolis
Eisenstadt, D. H.....Minneapolis
Eisenstadt, W. S.....Minneapolis
Eitel, G. D.....Minneapolis
Ellison, D. E.....Minneapolis
Engelhart, P. C.....Minneapolis
Engstrand, O. J.....Minneapolis
†Erickson, R. F.....Minneapolis
Ericson, R. M.....Minneapolis
†Evans, E. T.....Minneapolis
Evans, R. D.....Minneapolis
Fahr, G. E.....Minneapolis
Fansler, W. A.....Minneapolis
†Farsh, I. J.....Minneapolis
Feeney, J. M.....Minneapolis
Fenger, E. P. K.....Oak Terrace
Fetterly, Warren.....Minneapolis
Fink, L. W.....Minneapolis
Fink, W. H.....Minneapolis
†Fitzgerald, D. F.....Minneapolis
Fjeldstad, C. A.....Minneapolis
Fleming, A. S.....Minneapolis
Foker, L. W.....Minneapolis
Ford, W. H.....Minneapolis
Foster, W. K.....Minneapolis
†Fowler, L. H.....Minneapolis
Frane, D. B.....Minneapolis
Fredericks, G. M.....Minneapolis
Friedell, Aaron.....Minneapolis
†Fritzell, K. E.....Minneapolis
Frost, J. B.....Minneapolis
Fuller, Alice H.....Minneapolis
†Funk, V. K.....Oak Terrace
†Galloway, J. B.....Minneapolis
Gammell, J. H.....Minneapolis
Gardner, E. L.....Minneapolis
Garten, J. L.....Minneapolis
*Giere, E. O.....Minneapolis
Giere, J. C.....Minneapolis
Giere, R. W.....Minneapolis
†Giessler, P. W.....Minneapolis
Gilbert, M. G.....Minneapolis
Gilles, F. L.....Minneapolis
Gingold, B. A.....Minneapolis
Girvin, R. B.....Minneapolis
Golberg, M. L.....Minneapolis
Goldberg, I. M.....Minneapolis
Goldman, T. L.....Minneapolis
†Goldner, M. Z.....Minneapolis
Good, H. D.....Minneapolis
Gordon, P. E.....Minneapolis
†Gratzek, F. R.....Minneapolis
Grave, Floyd.....Minneapolis
Green, R. G.....Minneapolis
Grimes, Marian.....Minneapolis
Gronvall, P. R.....Minneapolis
Gunderson, N. G.....Minneapolis
Gushurst, E. G.....Minneapolis
Gustason, H. T.....Minneapolis
†Hacking, F. H.....Minneapolis
†Hagen, W. S.....Minneapolis
†Haggard, G. D.....Minneapolis
Hall, J. M.....Minneapolis
Hallberg, C. A.....Minneapolis
†Hallock, Philip.....Minneapolis
Hamel, A. L.....Minneapolis
Hamlin, G. B.....Minneapolis
†Hammerstad, L. M.....Minneapolis
Hammond, A. J.....Minneapolis
Hannah, H. B.....Minneapolis
Hansen, C. O.....Minneapolis
Hansen, E. W.....Minneapolis
Hansen, Olga S.....Minneapolis
Hansen, H. J.....Minneapolis
Hansen, H. V.....Minneapolis
Hanson, M. B.....Minneapolis
Hanson, W. A.....Minneapolis
Happe, L. J.....Minneapolis
Harrington, C. D.....Wayzata
Harrington, F. E.....Minneapolis
†Hart, V. L.....Minneapolis
†Hartzell, T. B.....Minneapolis
Hastings, D. R.....Minneapolis
†Hauge, E. T.....Minneapolis
Haugen, J. A.....Minneapolis
Haven, W. K.....Minneapolis
†Haverfield, Addie R.....Minneapolis
†Hawkinson, R. P.....Minneapolis
Hayes, J. M.....Minneapolis
Hays, A. T.....Minneapolis
†Head, D. P.....Minneapolis
Head, G. D.....Minneapolis
Hedback, A. E.....Minneapolis
Heim, R. R.....Minneapolis
Hendrickson, J. F.....Minneapolis
Henrikson, E. C.....Minneapolis
†Henry, C. E.....Kirksville, Mo.

Henry, M. O.....Minneapolis
Herbert, W. L.....Minneapolis
†Herbolsheimer, A. J.....Minneapolis
*Herman, A. L.....Minneapolis
Higgins, G. K.....Oak Terrace
Higgins, J. H.....Minneapolis
Hill, Eleanor J.....Minneapolis
Hillis, S. J.....Minneapolis
Hinckley, R. G.....Minneapolis
†Hirschfelder, A. D.....Minneapolis
Hirshfield, F. R.....Minneapolis
Hoaglund, A. W.....Minneapolis
†Hobbs, C. A.....Minneapolis
Hodge, S. V.....Minneapolis
Hoffbauer, F. W.....Minneapolis
Hoffert, H. E.....Minneapolis
Hoffman, R. A.....Minneapolis
Hoffman, W. L.....Minneapolis
†Holl, P. M.....Minneapolis
†Holmberg, C. J.....Minneapolis
Holt, W. B.....Minneapolis
Holzapfel, F. C.....Minneapolis
Houkom, Bjarne.....Minneapolis
Hovland, M. L.....Minneapolis
Hudson, G. E.....Minneapolis
Huenekens, E. J.....Minneapolis
Hultkrans, J. C.....Minneapolis
Hultkrans, R. E.....Minneapolis
Hurd, Annah.....Minneapolis
†Hutchinson, C. J.....Minneapolis
Hymes, Charles.....Minneapolis
Hynes, J. E.....Minneapolis
Irvine, H. G.....Minneapolis
†Jackson, C. M.....Minneapolis
†Jaack, J. L.....Minneapolis
Jennings, Mary H.....Minneapolis
Jensen, Harry.....Minneapolis
Jensen, M. J.....Minneapolis
Jensen, R. A.....Minneapolis
Johnson, A. B.....Minneapolis
Johnson, A. E.....Minneapolis
Johnson, Evelyn V.....St. Louis Park
Johnson, E. W.....Minneapolis
Johnson, H. A.....Minneapolis
Johnson, J. A.....Minneapolis
Johnson, Julius.....Minneapolis
†Johnson, N. A.....Santa Monica, Calif.
Johnson, Norman.....Minneapolis
Johnson, N. T.....Minneapolis
Johnson, R. A.....Minneapolis
†Johnson, R. E.....Minneapolis
†Johnson, Y. T.....Minneapolis
†Jones, H. W., Jr.....Minneapolis
Jones, W. R.....Minneapolis
Josewich, Alexander.....Minneapolis
Judd, W. H.....Minneapolis
Jurdy, M. J.....Minneapolis
Kalin, O. T.....Minneapolis
Karlstrom, A. E.....Minneapolis
Kelby, G. M.....Minneapolis
Kennedy, C. C.....Minneapolis
Kennedy, Jane F.....Minneapolis
Kerkhof, A. C.....Minneapolis
Kertesz, G.....Minneapolis
Kibbe, O. A.....Minneapolis
†King, E. A.....Minneapolis
King, Frances W.....Oak Terrace
King, H. T.....Minneapolis
Kinsella, T. J.....Minneapolis
Kistler, A. J.....Minneapolis
Kistler, C. M.....Minneapolis
Knapp, M. E.....Minneapolis
Knight, R. R.....Minneapolis
Knight, R. T.....Minneapolis
Koepecke, G. M.....Minneapolis
Koller, H. M.....Minneapolis
Koller, L. R.....Minneapolis
Korchik, J. P.....Minneapolis
Koucky, R. W.....Minneapolis
Kucera, F. J.....Hopkins
Kucera, W. J.....Minneapolis
Lajoie, J. M.....Minneapolis
Lang, L. A.....Minneapolis
Lapierre, A. P.....Minneapolis
Lapierre, J. T.....Minneapolis
Larsen, F. W.....Minneapolis
Larson, C. M.....Minneapolis
†Larson, Lawrence M.....Minneapolis
Larson, Leonard M.....Oak Terrace
Larson, P. N.....Minneapolis
La Vake, R. T.....Minneapolis
Laymon, C. W.....Minneapolis
Lazar, H. L.....Minneapolis
†Leavitt, H. H.....Minneapolis
Lebowski, J. A.....Minneapolis
Lee, H. M.....Minneapolis
Leland, H. R.....Minneapolis
†Leland, J. A. C.....Minneapolis
Lenz, O. A.....Minneapolis
Leonard, L. J.....Minneapolis
Leonard, Sam.....Minneapolis

Lillehei, E. J.....Robbinsdale
Lind, C. J.....Minneapolis
Lindberg, A. C.....Minneapolis
Lindberg, V. L.....Minneapolis
†Lindgren, R. C.....Minneapolis
Lindquist, R. H.....Minneapolis
Linner, H. P.....Minneapolis
†Linton, W. B.....Minneapolis
Lippman, E. S.....Minneapolis
†Lipschultz, Oscar.....Minneapolis
Litchfield, J. T.....Minneapolis
Litman, A. B.....Minneapolis
Litzenberg, J. C.....Minneapolis
Logeheil, R. C.....Minneapolis
†Long, Jesse.....Minneapolis
Loomis, E. A.....Minneapolis
Lovett, Beatrice R.....Oak Terrace
Lowry, Elizabeth C.....Minneapolis
Lowry, Thomas.....Minneapolis
†Luftkin, N. H.....Minneapolis
Lundblad, R. A.....Minneapolis
†Lundblad, S. W.....Minneapolis
Lundgren, A. C.....Minneapolis
Lundquist, E. F.....Minneapolis
Lynch, M. J.....Minneapolis
Lysne, Henry.....Minneapolis
Lysne, Myron.....Minneapolis
MacDonald, A. E.....Minneapolis
MacDonald, D. A.....Minneapolis
Mach, F. B.....Minneapolis
MacKinnon, D. C.....Minneapolis
Macnie, J. S.....Minneapolis
Maeder, E. C.....Minneapolis
Maland, C. O.....Minneapolis
Mariette, E. S.....Oak Terrace
Mark, D. B.....Minneapolis
Marking, G. H.....Osseo
Martinson, C. J.....Wayzata
†Matchan, G. R.....Minneapolis
Matthews, Justus.....Minneapolis
Mattill, P. M.....Oak Terrace
Mattison, R. E.....Minot, N. D.
Mattson, Hamlin.....Minneapolis
Maxeiner, S. R.....Minneapolis
May, W. H.....Minneapolis
†McCarthy, Donald.....Minneapolis
McCartney, J. S.....Minneapolis
†McCrimmon, H. P.....Minneapolis
McDaniel, Orianna.....Minneapolis
McFarland, A. H.....Minneapolis
McGandy, R. F.....Minneapolis
McGeary, G. E.....Minneapolis
McInerny, M. W.....Minneapolis
*McIntyre, George.....San Marino, Calif.
McKelvey, J. L.....Minneapolis
McKenzie, C. H.....Minneapolis
McKinlay, C. A.....Minneapolis
McKinley, J. C.....Minneapolis
McKinney, F. S.....Minneapolis
McLennan, C. E.....Minneapolis
McPheeters, H. O.....Minneapolis
†McQuarrie, Irvine.....Minneapolis
Meland, E. L.....Minneapolis
Merkert, C. E.....Minneapolis
Merkert, G. L.....Minneapolis
†Merrill, Elisabeth.....Minneapolis
Meyer, E. L.....Minneapolis
Michael, J. C.....Minneapolis
Michel, H. H.....Minneapolis
Michelson, H. E.....Minneapolis
Miller, H. E.....Minneapolis
†Miller, Hugo E.....Minneapolis
Miller, J. C.....Minneapolis
Milton, J. S.....Minneapolis
Minsky, A. C.....Minneapolis
Mitchell, E. C.....Mound
Moe, J. H.....Minneapolis
Moen, J. K.....Minneapolis
*Moir, W. W.....Minneapolis
Monson, E. M.....Minneapolis
Moren, Edward.....Minneapolis
Moriarty, Cecile R.....St. Paul
Morrison, A. W.....Minneapolis
Morrison, Charlotte J.....Minneapolis
Morse, R. W.....Minneapolis
Murphy, E. P.....Minneapolis
Murphy, I. J.....Minneapolis
Myers, J. A.....Minneapolis
†Naslund, A. W.....Minneapolis
Neal, J. M.....Minneapolis
Neary, R. P.....Minneapolis
†Nelson, H. S.....Excelsior
Nelson, E. N.....Minneapolis
Nelson, Harvey.....Minneapolis
Nelson, M. C.....Minneapolis
Nelson, O. L. N.....Minneapolis
Nelson, W. I.....Minneapolis
Newhart, Horace.....Minneapolis
†Noonan, W. J.....Minneapolis
Nordin, G. T.....Minneapolis
Nordland, Martin.....Minneapolis
Noth, H. W.....Minneapolis

ROSTER

Nydahl, M. J. St. Paul
 Nylander, E. G. Minneapolis
 Oberg, C. M. Minneapolis
 O'Brien, W. A. Minneapolis
 O'Donnell, J. E. Minneapolis
 Olsen, E. G. Minneapolis
 Olson, A. C. Minneapolis
 Olson, F. A. Minneapolis
 Olson, O. A. Minneapolis
 Olson, R. G. Minneapolis
 Oppen, E. G. Minneapolis
 Owre, Oscar. Minneapolis
 †Paine, J. R. Minneapolis
 Palen, B. J. Minneapolis
 Patterson, W. E. Minneapolis
 †Pederson, R. M. Minneapolis
 *Pennington, Reuben. Minneapolis
 Peppard, T. A. Minneapolis
 †Perlman, E. C. Minneapolis
 Petersen, J. R. Minneapolis
 Petersen, Thorvald. Minneapolis
 Peterson, Henry. Minneapolis
 Peterson, H. W. Minneapolis
 Peterson, N. P. Minneapolis
 Peterson, O. H. Minneapolis
 Peterson, P. E. Minneapolis
 Peterson, W. C. Minneapolis
 Pettit, L. J. Minneapolis
 Pewters, J. T. Minneapolis
 Peyton, W. T. Minneapolis
 Pfunder, M. C. Minneapolis
 Phelps, K. A. Minneapolis
 Platou, E. S. Minneapolis
 Platou, R. V. Minneapolis
 Pohl, J. F. Minneapolis
 Pollard, D. W. Minneapolis
 Pollock, D. K. Minneapolis
 Polzak, J. A. Minneapolis
 Poppe, F. H. Minneapolis
 Potter, R. B. Minneapolis
 Potthoff, C. J. Minneapolis
 Pratt, F. J. Minneapolis
 *Pratt, J. A. Minneapolis
 Preine, I. A. Minneapolis
 Preston, P. J. Minneapolis
 Priest, R. E. Minneapolis
 Prim, J. A. Minneapolis
 †Proffitt, W. E. Minneapolis
 Proshek, C. E. Minneapolis
 †Quello, R. O. B. Minneapolis
 †Quinby, T. F. Minneapolis
 Quist, H. W. Minneapolis
 Reed, C. A. Minneapolis
 Regnier, E. A. Minneapolis
 Renwidge, A. G. Minneapolis
 Reynolds, J. S. Minneapolis
 Rice, C. O. Minneapolis
 †Richardson, F. S. Fort Meade, S. D.
 Richdorf, L. F. Minneapolis
 Rieke, W. W. Wayzata
 Rigler, L. G. Minneapolis
 Risch, R. E. Minneapolis
 Rizer, R. L. Minneapolis
 Roam, C. M. Minneapolis
 Robb, E. F. Minneapolis
 Robbins, O. F. Minneapolis
 Roberts, L. J. Minneapolis
 Roberts, S. W. Minneapolis
 Roberts, T. S. Minneapolis
 Roberts, W. B. Minneapolis
 Robitshiek, E. C. Minneapolis
 Rochford, W. E. Minneapolis
 Rodda, F. C. Minneapolis
 Rosen, Samuel. Minneapolis

Rosenwald, R. M. Minneapolis
 Roskilly, G. C. P. Minneapolis
 Ross, A. J. Minneapolis
 Rucker, W. H. Minneapolis
 Rudell, G. L. Minneapolis
 Russett, A. N. Minneapolis
 Rusten, E. M. Minneapolis
 †Sadler, W. P. Minneapolis
 St. Cyr, K. J. Osseo
 Saliterman, B. I. Minneapolis
 Salt, C. G. Minneapolis
 Samuelson, Samuel. Minneapolis
 Sandell, S. T. Oak Terrace
 †Sandt, K. E. Minneapolis
 Sawatzky, W. A. Minneapolis
 Schaaf, F. H. K. Minneapolis
 Schaefer, W. G. Minneapolis
 †Scheldrup, N. H. Minneapolis
 Scherer, L. R. Minneapolis
 Schiele, B. C. Minneapolis
 †Schmidt, G. F. Minneapolis
 †Schmitt, A. F. Minneapolis
 †Schmitt, S. C. Los Angeles, Calif.
 †Schneider, J. P. Minneapolis
 Schneidman, N. R. Minneapolis
 Schottler, M. E. Minneapolis
 Schultz, P. J. Minneapolis
 †Schussler, O. F. Minneapolis
 Schwartz, V. J. Minneapolis
 †Schwyzer, Gustav. Minneapolis
 †Scott, F. H. Minneapolis
 Scott, H. G. Minneapolis
 Seashore, Gilbert. Minneapolis
 Seham, Max. Minneapolis
 Seifert, M. H. Excelsior
 Seljeskog, S. R. Minneapolis
 *Selleseth, I. F. Minneapolis
 Sessions, J. C. Minneapolis
 Shaperman, Eva P. Minneapolis
 Shapiro, M. J. Minneapolis
 Sharp, D. V. Minneapolis
 Siegmann, W. C. Minneapolis
 Silver, J. D. Minneapolis
 Simons, J. H. Minneapolis
 Simonson, D. B. Minneapolis
 Simpson, E. D. Minneapolis
 Sinykin, M. B. Minneapolis
 Siperstein, D. M. Minneapolis
 †Sivertsen, Andrew. Excelsior
 Sivertsen, Ivar. Minneapolis
 Skjold, A. C. Minneapolis
 Sloan, Julius. Minneapolis
 Smisek, F. M. Minneapolis
 Smith, A. E. Minneapolis
 Smith, A. M. Minneapolis
 Smith, Archie M. Minneapolis
 Smith, H. R. Minneapolis
 Smith, Margaret I. Minneapolis
 Smith, N. M. Minneapolis
 Soderlind, R. T. Minneapolis
 Solhaug, S. B. Minneapolis
 Spano, J. P. Minneapolis
 Sperling, Louis. Minneapolis
 Spink, W. W. Minneapolis
 Spratt, C. N. Minneapolis
 Stanford, C. E. Minneapolis
 Stebbins, T. L. Minneapolis
 Stein, K. E. Lakeville
 Stelter, L. A. Minneapolis
 Stenstrom, Annette T. Minneapolis
 Stewart, R. I. Minneapolis
 Stoesser, A. V. Minneapolis
 †Stomel, Joseph. Los Angeles, Calif.
 Strachauer, A. C. Minneapolis

†Stromgren, D. T. Minneapolis
 Strout, G. E. Minneapolis
 Sturre, J. R. Minneapolis
 Sullivan, R. M. Minneapolis
 Sundt, Mathias. Minneapolis
 Swanson, Cephas. Minneapolis
 Swanson, R. E. Minneapolis
 †Sweetser, H. B., Jr. Minneapolis
 †Sweetser, H. B., Sr. Minneapolis
 Sweetser, T. H. Minneapolis
 Sweitzer, S. E. Minneapolis
 †Swendseen, C. G. Minneapolis
 Taylor, J. H. Minneapolis
 Thomas, G. E. Minneapolis
 Thomas, G. H. Minneapolis
 Thomas, G. J. Minneapolis
 Thompson, W. H. Minneapolis
 Thyssell, D. M. Minneapolis
 Tingdale, A. C. Minneapolis
 Trueman, H. S. Minneapolis
 Tunstead, H. J. Minneapolis
 Turnacliff, D. D. Minneapolis
 Ude, W. H. Minneapolis
 Ulrich, H. L. Minneapolis
 Undine, C. A. Minneapolis
 Vik, A. E. Minneapolis
 Wahlquist, H. F. Minneapolis
 Walch, A. E. Minneapolis
 Waldron, C. W. Minneapolis
 Wall, C. R. Minneapolis
 Walsh, W. T. Minneapolis
 Wangsten, O. H. Minneapolis
 Wanous, E. Z. Minneapolis
 †Ward, A. W. Minneapolis
 Ward, P. A. Minneapolis
 Watson, C. J. Minneapolis
 Webb, R. C. Minneapolis
 †Weisman, S. A. Minneapolis
 West, Catherine C. Minneapolis
 Wethall, A. G. Minneapolis
 Wetherby, Macnider. Minneapolis
 Weum, T. W. Minneapolis
 White, A. A. Minneapolis
 White, S. M. Minneapolis
 White, W. D. Minneapolis
 Whitesell, L. A. Minneapolis
 Widen, W. F. Minneapolis
 Wilcox, A. E. Minneapolis
 †Wildbush, F. F. Minneapolis
 Wilder, K. W. Minneapolis
 Wilder, R. L. Minneapolis
 Wilken, P. A. Minneapolis
 Willcutt, C. E. Minneapolis
 Williams, Robert. Minneapolis
 Winer, L. H. Minneapolis
 Winther, Nora M. C. Minneapolis
 †Wiperman, F. F. Minneapolis
 Witham, C. A. Minneapolis
 Wittich, F. W. Minneapolis
 Wohlrabe, A. A. Minneapolis
 Woodworth, Elizabeth. Minneapolis
 †Wright, C. D. Minneapolis
 Wright, S. G. Minneapolis
 Wright, W. S. Minneapolis
 Wyatt, O. S. Minneapolis
 Wynne, H. M. N. Minneapolis
 Ylvisaker, R. S. Minneapolis
 Yoerg, O. W. Minneapolis
 Zaworski, E. A. Minneapolis
 Zierold, A. A. Minneapolis
 Zinter, F. A. Minneapolis
 Ziskin, Thomas. Minneapolis

KANDIYOHI-SWIFT-MEEKER COUNTY MEDICAL SOCIETY

Regular meetings, second Wednesday of month

Annual meeting, December

Number of Members: 34

President
 Wilmot, H. E. Litchfield
 Secretary
 Frost, E. H. Willmar
 Anderson, R. E. Willmar
 Arnsen, J. M. Benson
 †Beckjord, P. R. Willmar
 Branton, A. F. Willmar
 Branton, B. J. Willmar
 Brigham, Frank. Watkins
 Daignault, Oscar. Benson
 Danielson, K. A. Litchfield

Danielson, Lennox. Litchfield
 Downswell, W. J. Kerkhoven
 Feinstein, J. Y. Grove City
 Frederickson, Alice C. Willmar
 Frederickson, G. U. Y. Willmar
 Frisch, F. P. Willmar
 Frost, E. H. Willmar
 Giere, S. W. Benson
 †Gilman, L. C. Atwater
 Hodapp, R. J. Willmar
 Jacobs, D. L. Willmar
 Jacobs, J. C. Willmar
 Johnson, Hans. Kerkhoven

†Johnson, J. W. Kerkhoven
 Kaufman, E. J. Appleton
 Macklin, W. E. Litchfield
 †Mattson, A. D. Atwater
 Petersen, M. C. Willmar
 Proeschel, R. K. Willmar
 Ripple, R. J. Willmar
 Scofield, C. L. Benson
 Sellers, G. K. Dassel
 Solsem, F. N. Spicer
 Telford, V. J. Litchfield
 Wilmot, C. A. Litchfield
 Wilmot, H. E. Litchfield

LYON-LINCOLN COUNTY MEDICAL SOCIETY

Regular meetings, first Tuesday of month

Annual meeting, Last Tuesday in October

Number of Members: 25

President
 Frank, J. E. Marshall
 Secretary
 Workman, W. G. Tracy

Bossingham, O. N. Lake Benton
 †Erickson, A. O. Ivanhoe
 Ford, B. C. Marshall
 Frank, J. E. Marshall
 Friedell, George. Ivanhoe

Germo, Charles. Balaton
 Gray, F. D. Marshall
 Gray, R. F. Marshall
 †Helferty, J. K. Tracy
 Hermanson, P. E. Hendricks

ROSTER

Hoidale, A. D.....Tracy
Johnson, P. C.....Tyler
Karleen, C. I.....Tracy
Kruetzer, T. C.....Marshall
Monson, L. J.....Canby

Purves, G. H.....Lake Benton
†Robertson, J. B.....Minneapolis
Sanderson, E. T.....Minneota
†Smith, L. A.....Balaton
Thompson, C. O.....Hendricks

Vadheim, A. L.....Tyler
Valentine, W. H.....Tracy
Wolstan, S. D.....Minneota
Workman, W. G.....Tracy
Yaeger, W. W.....Marshall

McLEOD COUNTY MEDICAL SOCIETY

Regular meetings, at call of President
Annual meeting, January
Number of Members: 19

President
McMahon, M. J.....Green Isle
Secretary
Kallestad, L. L.....Hutchinson
Clement, J. B.....Lester Prairie
Goss, H. C.....Glencoe
Holm, H. H.....Glencoe

Jensen, A. M.....Brownston
Kallestad, L. L.....Hutchinson
Klima, W. W.....Stewart
Lippmann, E. W.....Hutchinson
McMahon, M. J.....Green Isle
Neumaier, Arthur.....Glencoe
Ninneman, N. N.....Silver Lake
Rempel, D. D.....Lester Prairie

Sahr, W. G.....Hutchinson
Schmidt, W. R.....Glencoe
Scholpp, O. W.....Hutchinson
Sheppard, C. G.....Hutchinson
†Sheppard, Fred.....Burien, Wash.
†Sheppard, P. E.....Hutchinson
†Tinker, C. W.....Stewart
Trutna, T. J.....Silver Lake

MOWER COUNTY MEDICAL SOCIETY

Regular meetings, last Thursday of each month
Annual meeting, November
Number of Members: 27

President
Havens, J. G. W.....Austin
Secretary
Leck, P. C.....Austin
Allen, C. C.....Austin
Allen, H. B.....Austin
Anderson, D. P., Jr.....Austin
Cronwell, B. J.....Austin
Eckdale, J. E.....Lyle
Eckhardt, C. L.....Austin
Fisch, H. M.....Austin

Flanagan, L. G.....Austin
Grise, W. B.....Austin
Havens, J. G. W.....Austin
Hegge, O. H.....Austin
Hegge, R. S.....Austin
Henslin, A. E.....Le Roy
Hertel, G. E.....Austin
Leck, P. C.....Austin
Lommen, P. A.....Austin
McKenna, J. K.....Austin

Melzer, G. R.....Lyle
Mitchell, R. S.....Grand Meadow
Morrow, J. J.....Austin
Morse, M. P.....Le Roy
Robertson, P. A.....Austin
Rosenthal, F. H.....Grand Meadow
Schneider, P. J.....Adams
Schottler, G. J.....Dexter
Sheedy, C. L.....Austin
Thomson, J. M.....Chicago, Ill.

NICOLLET-LE SUEUR COUNTY MEDICAL SOCIETY

Annual meeting, December
Number of Members: 24

President
Nilson, H. J.....North Mankato
Secretary
Johnson, H. C.....North Mankato
Aitkens, H. B.....Le Center
Covell, W. W.....St. Peter
Curtis, R. A.....Le Center
Ericson, Swan.....Le Sueur
Freeman, G. H.....St. Peter

†Grimes, B. P.....St. Peter
Hiniker, P. J.....Le Sueur
Holtan, Theodore.....Waterville
Johnson, H. C.....North Mankato
Kolars, J. J.....Le Center
Larson, M. H.....Nicollet
Lenander, M. E.....St. Peter
Miller, E. W.....St. Peter
Nilson, H. J.....North Mankato

Olmanson, E. G.....St. Peter
Olson, D. C.....Gaylord
Rossen, R. X.....Hastings
Sonnesyn, N. N.....Le Sueur
Strathern, C. S.....St. Peter
Strathern, F. P.....St. Peter
Traxler, F. J.....Henderson
Wohlrahe, C. F.....North Mankato
Wolner, O. H.....St. Peter
Woodworth, L. F.....Le Center

OLMSTED-HOUSTON-FILLMORE-DODGE COUNTY MEDICAL SOCIETY

Regular meetings, first Wednesday every odd month
Annual meeting, November
Number of Members: 475

President
Brown, P. W.....Rochester
Secretary
Anderson, M. J.....Rochester
Adams, R. C.....Rochester
Adson, A. W.....Rochester
Affeldt, D. E.....Kasson
Ahls, Jacob.....Caledonia
Aita, J. A.....Rochester
Albers, G. D.....Rochester
Allen, E. V.....Rochester
Alvarez, W. C.....Rochester
Amberg, Samuel.....Rochester
†Ambrusko, J. S.....Rochester
†Anderson, B. M.....Rochester
Anderson, C. D.....Rochester
Anderson, E. M.....Rochester
Anderson, M. J.....Rochester
Arny, F. P.....Preston
Ashburn, F. S.....Rochester

Braasch, W. F.....Rochester
Bradshaw, S. P.....Rochester
Breslow, Lester.....Rochester
Brookley, G. V., Jr.....Rochester
Brooks, S. M.....Rochester
Broders, A. C.....Rochester
Brown, A. E.....Rochester
Brown, G. E., Jr.....Pine City
Brown, H. A.....Rochester
Brown, J. R.....Rochester
Brown, M. H.....Rochester
Brown, P. W.....Rochester
Browne, H. C., Jr.....Rochester
Brunsting, L. A.....Rochester
Bryson, J. C.....Rochester
Buck, R. M.....Rochester
Buie, L. A.....Rochester
Burchell, H. B.....Rochester
Burdon, Phyllis J.....Rochester
Burkhart, R. J.....Rochester
Butt, H. R.....Rochester

Cunningham, B. P.....Rochester
Currens, J. H.....Rochester
Cusick, P. L.....Rochester
Darling, J. P.....Rochester
Daugherty, G. W.....Rochester
Davies, L. T.....Rochester
Davis, A. C.....Rochester
Davis, I. G.....Rushford
Day, Lois.....Rochester
Dearing, W. H.....Rochester
Demong, C. V.....Rochester
Desjardins, A. U.....Rochester
Dix, C. R.....Rochester
Dixon, C. F.....Rochester
Dobyns, B. M.....Rochester
Dockerty, M. B.....Rochester
Dolder, F. C.....Eyota
Donald, C. J., Jr.....Rochester
Downing, G. C.....Rochester
†Drake, F. A.....Lanesboro
Drapiewski, J. F.....Rochester
Drips, Della G.....Rochester
Dry, T. J.....Rochester
Dunlap, D. L.....Rochester

Babb, F. S.....Rochester
†Baggenstoss, A. H.....Rochester
Bair, H. L.....Rochester
Baker, G. S.....Rochester
Baker, H. R.....Hayfield
Baker, R. L.....Hayfield
Balfour, D. C.....Rochester
Bargen, J. A.....Rochester
Barker, N. W.....Rochester
Barnes, A. R.....Rochester
Beard, Crowell.....Rochester
Beizer, L. H.....Rochester
Belote, G. B.....Caledonia
Benedict, W. L.....Rochester
Bennett, J. K.....Rochester
Bennett, W. A.....Rochester
Benson, R. E.....Rochester
Berkman, D. M.....Rochester
Berkman, J. M.....Rochester
Bickel, W. H.....Rochester
Bigelow, C. E.....Dodge Center
Binger, M. W.....Rochester
Black, B. M.....Rochester
Blackwell, W. J.....Rochester
Blaisdell, J. S.....Rochester
Boothby, W. M.....Rochester
Bowling, H. H.....Rochester

Caldwell, H. W.....Rochester
Call, J. D.....Rochester
Camp, J. D.....Rochester
Campbell, C. M.....Rochester
Campbell, D. C.....Rochester
Campbell, J. R.....Rochester
Canfield, W. W.....Houston
Carrier, H. M.....Rochester
Chapman, A. S.....Rochester
Christensen, B. H.....Rochester
Claggett, O. T.....Rochester
Clark, L. W.....Spring Valley
Clarke, E. T.....Rochester
Clifton, T. A.....Chatfield
Comfort, M. W.....Rochester
Condon, W. B.....Rochester
†Conner, H. M.....Rochester
Cook, E. N.....Rochester
Cooper, Talbert.....Rochester
Corbitt, R. W.....Rochester
Counsellor, V. S.....Rochester
Coventry, M. B.....Rochester
Cragg, R. W.....Rochester
Craig, W. McK.....Rochester
Crenshaw, J. L.....Rochester
Crewe, J. E.....Rochester
Cummings, D. W.....Rushford

Eaton, L. McK.....Rochester
Egan, Sherman.....Rochester
Eginton, C. T.....Rochester
Ehni, G. J.....Rochester
Elkins, E. C.....Rochester
Emerson, G. F.....Rochester
Emmett, J. L.....Rochester
English, J. P.....Rochester
Erich, J. B.....Rochester
†Erickson, C. O.....Rochester
Erickson, E. W.....Rochester
Evans, C. H., Jr.....Rochester
†Everts, A. B.....Rochester
Eusterman, G. B.....Rochester
Faber, J. E.....Rochester
Fahlund, G. T. R.....Rochester
Fawcett, R. M.....Rochester
Feldman, F. M.....Rochester
Fenstermacher, R. H.....Rochester
Ferguson, F. F.....Detroit, Mich.
†Ferguson, W. J., Jr.....Rochester
Ferris, D. O.....Rochester
Figi, F. A.....Rochester
Flinn, J. H.....Rochester

ROSTER

Fogarty, C. W., Jr.	Rochester	Krusen, F. H.	Rochester	Pool, T. L.	Rochester
Forney, R. A.	Rochester	Kvale, W. F.	Rochester	Popp, W. C.	Rochester
Foss, E. L.	Rochester	Lander, H. H.	Rochester	Powers, F. H.	Rochester
Foster, M. A.	Rochester	Lannin, J. C.	Mabel	Prangen, A. D.	Rochester
Poster, T. N.	Rochester	Large, H. R.	Rochester	Pratt, J. H., Jr.	Rochester
Fricke, R. E.	Rochester	Larrabee, W. F., Jr.	Rochester	Preston, F. W.	Rochester
Gaarde, F. W.	Rochester	Latchem, C. W.	Rochester	Prickman, L. E.	Rochester
Gambill, E. E.	Rochester	Leddy, E. T.	Rochester	Priestley, J. T.	Rochester
Gelbach, P. D.	Rochester	Lehnhoff, H. J., Jr.	Rochester	Proudfit, C. H.	Rochester
Ghormley, R. K.	Rochester	Lemon, W. S.	Rochester	Pruitt, R. D.	Rochester
Giffin, H. M.	Rochester	Levinson, J. P.	Rochester	Pugh, D. G.	Rochester
Giffin, H. Z.	Rochester	†Lien, R. J.	Rochester	Radcliffe, James, Jr.	Rochester
Gillespie, D. R.	Rochester	Lillie, H. I.	Rochester	Randall, L. M.	Rochester
Blomset, D. A.	Rochester	Lillie, J. C.	Rochester	Rasmussen, W. C.	Rochester
Glover, R. P.	Rochester	Lindahl, W. W.	Rochester	Raszkowski, H. J.	Rochester
Good, C. A., Jr.	Rochester	Little, A. G.	Rochester	†Richardson, R. J.	Rushford
Gore, H. R.	Rochester	Lipscomb, P. R.	Rochester	Richardson, W. E.	Rushford
Gorsuch, M. T.	Rochester	†Lochead, D. C.	Rochester	Rigos, F. J.	Rochester
Graham, F. M.	Rochester	Logan, A. H.	Rochester	Risser, A. F.	Stewartville
Grandy, A. Margaret.	Rochester	Logan, G. B.	Rochester	Rivers, A. B.	Rochester
†Gray, H. K.	Rochester	Love, J. G.	Rochester	Robertson, H. E.	Rochester
Greene, L. F.	Rochester	†Love, W. R.	Rochester	Robinson, F. J.	Rochester
Grinnell, W. B.	Preston	Lovelace, W. R.	Rochester	Rogne, W. G.	Spring Grove
Guernsey, D. E.	Rochester	Lovelady, S. B.	Rochester	Root, G. T.	Rochester
Guthrie, R. F.	Rochester	Lovshin, L. L.	Rochester	Rosenberg, E. F.	Rochester
Habein, H. C.	Rochester	Lucky, C. A.	Rochester	Rosenow, J. H.	Rochester
Haines, S. F.	Rochester	Lueck, A. G.	Rochester	Rucker, C. W.	Rochester
Haisten, A. S.	Rochester	Lundy, J. S.	Rochester	Russ, F. H.	Rochester
Hall, B. E.	Rochester	Luden, Georgine Victoria, B. C., Can.	Rochester	Rynearson, E. H.	Rochester
Hallberg, O. E.	Rochester	Lynch, R. C.	Rochester	Sanford, A. H.	Rochester
Hallenbeck, D. F.	Rochester	†MacCarty, W. C.	Rochester	Sayre, G. P.	Rochester
Hallenbeck, G. A.	Rochester	MacCarty, W. C., Jr.	Rochester	Scales, J. R.	Rochester
Hardman, Sue C.	Rochester	Macey, H. B.	Rochester	Scheetz, R. J.	Rochester
Hargraves, M. M.	Rochester	MacKay, H. J.	Seattle, Wash.	Scheifley, C. H.	Rochester
Harley, R. D.	Rochester	MacLean, A. R.	Rochester	Schlicke, C. P.	Rochester
Harper, S. B.	Rochester	†Magath, T. B.	Rochester	Schmidt, H. W.	Rochester
Harrington, S. W.	Rochester	Maino, C. R.	Rochester	Schmitz, R. L.	Rochester
Harman, H. R.	Rochester	Manlove, F. R.	Rochester	†Schneider, H. H. Santa Monica, Calif.	Rochester
†Harvey, George, Jr.	Rochester	†Mann, F. C.	Rochester	Schunke, G. B.	Rochester
Hausmann, P. F.	Rochester	Martin, G. M.	Rochester	Scott, F. M.	Shelbyville, Ind.
Havens, F. Z.	Rochester	Mason, B. A.	Rochester	Sealy, W. B.	Rochester
Heck, F. J.	Rochester	Masson, D. M.	Rochester	Seefeld, P. H.	Rochester
Heersema, P. H.	Rochester	Masson, J. C.	Rochester	Seldin, T. H.	Rochester
Heilman, Charles.	Fargo, N. D.	Mayo, C. W.	Rochester	Seybold, W. D.	Rochester
Heilman, Dorothy M. H.	Rochester	Maytum, C. K.	Rochester	Sharpe, W. S.	Minneapolis
Heilman, F. R.	Rochester	McCall, C. H.	Rochester	Shelden, J. T.	Rochester
Helland, G. M.	Spring Grove	McCallig, J. J.	Rochester	Shelden, W. D.	Rochester
Helland, J. W.	Spring Grove	McCloud, C. N., Jr.	Rochester	Shepard, V. D.	Rochester
Helmholz, H. F.	Rochester	McDonald, J. R.	Rochester	Shick, R. M.	Rochester
Hempstead, B. E.	Rochester	McEachern, C. G.	Rochester	Sidell, C. M.	Rochester
Hench, P. S.	Rochester	McKaig, C. B.	Pine Island	Simonton, K. M.	Rochester
Henderson, J. W.	Rochester	McNairy, D. J.	Rochester	Silcomb, C. H.	Rochester
Henderson, M. S.	Rochester	Mead, F. B.	Rochester	Sluder, F. S., Jr.	Rochester
Herbst, R. F.	Wykoff	Merritt, W. A.	Rochester	Smalley, R. E.	Rochester
Herrell, W. E.	Rochester	Messler, J. D.	Rochester	Smith, B. F.	Rochester
Hewitt, Edith S.	Rochester	Meyerding, H. W.	Rochester	Smith, F. D.	Rochester
†Hewitt, R. M.	Rochester	Miller, J. R., Jr.	Rochester	Smith, F. H.	Rochester
†Heyerdale, O. C.	Rochester	Moersch, F. P.	Rochester	Smith, F. L.	Rochester
Heyerdale, W. W.	Rochester	Moersch, H. J.	Rochester	Smith, H. L.	Rochester
Higginson, J. F.	Rochester	Montgomery, Hamilton	Rochester	Smith, K. A.	Rochester
Hildebrand, Alice G.	Rochester	Moreton, R. D.	Rochester	Smith, L. A.	Rochester
Hill, J. R.	Rochester	Morissette, Leopold.	Rochester	Smith, N. D.	Rochester
Hines, E. A., Jr.	Rochester	Morlock, C. G.	Rochester	Smith, R. L., Jr.	Rochester
Hinshaw, H. C.	Rochester	Mousel, L. H.	Rochester	†Snell, A. M.	Rochester
Hoagland, P. L., Jr.	Rochester	Murray, R. A.	Rochester	Sprague, R. G.	Rochester
Hodgson, Jane E.	Rochester	Musgrove, J. E.	Rochester	Standard, W. P.	Rochester
Hopkins, E. O.	Rochester	Mussey, R. D.	Rochester	Stark, F. M.	Rochester
Hopping, R. A.	Rochester	Nass, H. A.	Mabel	Stevenson, W. D., Jr.	Quincy, Ill.
Horton, B. T.	Rochester	Nay, R. M.	Rochester	Stickney, J. M.	Rochester
Howell, L. P.	Rochester	Neel, R. M.	Rochester	Stilwell, G. G.	Rochester
Hoynes, R. M.	Rochester	Nehring, J. P.	Preston	Stout, H. A.	Rochester
Hughes, T. J.	Rochester	New, G. B.	Rochester	Stover, Lee.	Rochester
Hummer, G. J.	Rochester	Nichols, D. R.	Rochester	Stroebe, C. F., Jr.	Rochester
Hunt, A. B.	Rochester	Norris, N. T.	Caledonia	Strom, G. W.	Rochester
Iverson, R. M.	Rochester	Odel, H. M.	Rochester	Stuhler, L. G.	Rochester
Ivie, J. McK.	Rochester	O'Leary, P. A.	Rochester	Sutherland, C. G.	Rochester
Jackman, R. J.	Rochester	Olsen, A. M.	Rochester	Svien, H. J.	Rochester
Jacobson, C. E., Jr.	Rochester	Olson, E. A.	Pine Island	Tanner, F. H.	Rochester
Johnson, C. R.	Rochester	Olson, G. E.	West Concord	Tennison, William, III.	Arcadia, Calif.
Johnson, H. P.	Harmony	Olson, J. D.	Rochester	Thompson, G. J.	Rochester
Johnson, R. B.	Lanesboro	Olson, S. W.	Rochester	Thornell, W. C.	Rochester
Joss, C. S.	Rochester	Onsgard, L. K.	Houston	Thorson, S. B.	Rochester
Joyce, G. L.	Rochester	Parker, R. L.	Rochester	Throckmorton, T. D.	Rochester
Judd, D. B.	Rochester	Parkhill, Edith M.	Rochester	Tierney, C. M.	Harmony
Judd, E. S.	Rochester	Pattison, D. H.	Rochester	Tillisch, J. H.	Rochester
†Jump, W. C.	Kasson	Paulson, D. L.	Rochester	Tinney, W. S., Jr.	Rochester
Kapernick, J. S.	Rochester	Paulson, J. A.	Rochester	Trandem, C. Elinor.	Rochester
Kauvar, A. J.	Rochester	Pearson, D. J.	Rochester	Treusch, J. V.	Rochester
Keating, F. R., Jr.	Rochester	Pemberton, J. deJ.	Rochester	Trimingham, H. G. L.	Rochester
Keith, H. M.	Rochester	Pender, J. W.	Rochester	Tuohy, E. B.	Rochester
Keith, N. M.	Rochester	Pennington, R. E.	Rochester	Twedy, J. A.	Rochester
Kennedy, R. L. J.	Rochester	Perry, T. T.	Rochester	Twyman, R. A.	Rochester
Kepler, E. J.	Rochester	Peters, G. A.	Rochester	Uhllein, Alfred.	Rochester
Kernohan, J. W.	Rochester	Peterson, W. G.	Rochester	Underdahl, L. O.	Rochester
Kierland, R. R.	Rochester	†Phalen, G. S.	Rochester	Vadheim, J. L.	Rochester
Kiernan, P. C.	Rochester	Piper, M. C.	Rochester	Van Demark, R. E.	Rochester
Kirklin, B. R.	Rochester	Plimpton, N. C., Jr.	Rochester	Vaughn, L. D.	Rochester
Kirklin, O. L.	Rochester	Plummer, W. A.	Rochester	Vines, R. W.	Rochester
Klinkenberg, R. B.	Rochester	Polley, H. F.	Rochester	Wagener, H. P.	Rochester
Kloos, E. K.	Rochester	Pollock, L. W.	Rochester	Wakefield, E. G.	Rochester
Koelsche, G. A.	Rochester	Polmeteer, F. E.	Rochester	Wallace, W. B.	Rochester
Kreilkamp, B. L.	Rochester				

ROSTER

Walsh, M. N. Rochester
Walters, Waltman. Rochester
Ward, B. H. Rochester
Watkins, C. H. Rochester
Waugh, J. M. Rochester
Weber, H. M. Rochester
Weir, J. F. Rochester
Weisel, Wilson. Rochester
Wells, G. R. Rochester
White, R. R., III. Rochester
Whitehouse, F. R. Rochester

Wiig, L. M. Rochester
Wilder, R. M. Rochester
Wilder, R. M., Jr. Rochester
Wilhelm, Agatha M. Rochester
Williams, H. L. Rochester
Williams, R. D. Rochester
Williams, R. V. Rushford
Willius, F. A. Rochester
Willson, D. M. Rochester
Wilson, K. G. Rochester

Wilson, L. B. Rochester
Wollaeger, E. E. Rochester
Woltman, H. W. Rochester
Wood, H. G. Rochester
Wood, W. W., Jr. Rochester
Woodruff, C. W. Chatfield
Wulf, R. F. Rochester
Wyrens, R. G. Rochester
Yeager, C. H. Rochester
Young, H. H. Rochester

PARK REGION DISTRICT AND COUNTY MEDICAL SOCIETY

Douglas, Grant, Otter Tail and Wilkin Counties
Regular meetings, Second Wednesday every other month
Annual meeting, December
Number of Members: 60

President
Leibold, H. H. Parkers Prairie
Secretary
Nelson, W. O. B. Fergus Falls
Arndt, H. W. Detroit Lakes
Baker, A. C. Fergus Falls
Baker, N. H. Fergus Falls
Bergquist, K. E. Battle Lake
Blakey, A. R. Osakis
Boline, C. A. Battle Lake
Boyd, L. M. Alexandria
†Boysen, J. E. Pelican Rapids
Boysen, Peter. Pelican Rapids
Broker, W. S. Wadena
Burnap, W. L. Fergus Falls
Clifford, G. W. Alexandria
Combacker, L. C. Fergus Falls
Drought, W. W. Fergus Falls
Esser, John. Perham
Estrem, C. O. Fergus Falls
Freeman, W. N. Perham

Griswold, F. E. Hoffman
Hanson, E. C. New York Mills
Haskell, A. D. Alexandria
Heiberg, E. A. Fergus Falls
Jacobs, G. C. Fergus Falls
Johnson, O. V. Fergus Falls
Kierland, P. E. Alexandria
Lee, W. A. Fergus Falls
Leibold, H. H. Parkers Prairie
†Leighton, Robert Evansville
Leland, J. T. Herman
Lewis, A. J. Henning
Love, F. A. Carlos
Lund, C. J. T. Fergus Falls
McLane, W. O. Perham
McMahon, L. H. Breckenridge
Miller, W. A. New York Mills
Mouritsen, G. J. Fergus Falls
Naegeli, Frank. Fergus Falls
Nelson, R. A. Fergus Falls
Nelson, W. O. B. Fergus Falls

Parson, L. R. Elbow Lake
Parson, Lillian B. Elbow Lake
Patterson, W. L. Fergus Falls
Paulson, T. S. Fergus Falls
Paulson, E. C. Elbow Lake
Randall, A. M. Ashby
Reeve, E. T. Elbow Lake
Rimer, E. W. Breckenridge
Satersmoen, Theodore. Pelican Rapids
Sather, E. R. Alexandria
Schauber, W. F. Parkers Prairie
†Schmiedt, F. B. Battle Lake
Serkland, J. C. Rothsay
Siegel, Clarence. Battle Lake
Stemsrud, H. L. Alexandria
Sutton, H. R. Hoffman
Tanquist, E. J. Alexandria
†Vail, J. B. Henning
Warner, J. J. Perham
Wasson, L. F. Alexandria
†Webster, L. J. Battle Lake
Wray, W. E. Campbell

RAMSEY COUNTY MEDICAL SOCIETY

Regular meetings, last Monday in every month excepting June, July, August
Annual meeting, last Monday in January
Number of Members: 365

President
Drake, C. B. St. Paul
Secretary
Ryan, J. M. St. Paul
Abbott, J. S. St. Paul
†Adair, A. F., Jr. St. Paul
Ahrens, A. E. St. Paul
Ahrens, A. H. St. Paul
Alberts, M. W. St. Paul
Alden, J. F. St. Paul
Alexander, F. H. St. Paul
†Armstrong, J. M. St. Paul
Arnquist, A. S. St. Paul
Aurelius, J. R. St. Paul
Ausman, C. F. St. Paul
Bacon, D. K. St. Paul
†Bacon, L. C. St. Paul
Bacon, M. M. St. Paul
Barnes, R. G., Jr. Hastings
Barry, L. W. St. Paul
Barsness, Nellie O. N. St. Paul
Beals, Hugh. St. Paul
Beech, R. H. St. Paul
†Beek, H. O. St. Paul
Bell, C. C. St. Paul
Benepe, J. L. St. Paul
Bennion, P. H. St. Paul
Bentley, N. P. St. Paul
Bernstein, W. C. St. Paul
Bicek, J. F. St. Paul
Binger, H. E. St. Paul
Birnberg, T. L. St. Paul
Bock, R. A. St. Paul
Boeckmann, Egil. St. Paul
Bolender, H. L. St. Paul
†Borg, J. F. St. Paul
Bouma, L. R. St. Paul
Brand, G. D. St. Paul
Bray, E. R. St. Paul
Briggs, J. F. St. Paul
Broadie, T. E. St. Paul
Brodie, W. D. St. Paul
†Brown, E. I. St. Paul
Brown, J. C. St. Paul
†Bulinski, T. J. St. Paul
†Burch, E. P. St. Paul
Burch, F. E. St. Paul
Burns, R. M. St. Paul
Burton, C. G. St. Paul
Bushner, H. H. St. Paul
Cain, C. L. St. Paul
Caldwell, J. P. St. Paul
Carroll, W. C. St. Paul
Chadbourne, C. R. St. Paul
Chatterton, C. C. St. Paul
Christiansen, A. St. Paul

†Christison, J. T. St. Paul
†Clark, H. B., Jr. St. Paul
†Clark, T. C. Arlington, Va.
Clarke, E. K. St. Paul
†Cochrane, B. B. St. Paul
†Coddon, W. D. St. Paul
Colby, W. L. St. Paul
Cole, W. H. St. Paul
†Collie, H. G. St. Paul
Colvin, A. R. St. Paul
Connor, C. E. St. Paul
Cook, C. K. St. Paul
Cooper, C. C. St. Paul
Countryman, R. S. St. Paul
Cowern, E. W. Seattle, Wash.
Critchfield, L. R. St. Paul
Crombie, F. J. No. St. Paul
Culligan, J. M. St. Paul
Dack, L. G. St. Paul
†Daugherty, E. B., Marine-on-St. Croix
Daugherty, L. E. St. Paul
†Davis, Herbert. St. Paul
†Davis, William. St. Paul
DeCoursey, D. M. St. Paul
Dedolph, Karl. St. Paul
Delavan, P. A. St. Paul
Derauf, B. I. St. Paul
Dickson, T. H. St. Paul
Dittman, G. C. St. Paul
Donohue, P. F. St. Paul
Dovre, C. M. St. Paul
Drake, C. B. St. Paul
Dunn, J. N. St. Paul
Earl, George. St. Paul
Earl, John. St. Paul
Earl, Robert. St. Paul
Edlund, G. St. Paul
Edwards, J. W. St. Paul
Edwards, T. J. St. Paul
Ely, O. S. South St. Paul
Emerson, E. C. St. Paul
Endress, E. K. St. Paul
Enroth, O. E. White Bear Lake
Ernest, G. C. H. South St. Paul
†Eshelby, E. C. St. Paul
Fahey, E. W. St. Paul
Ferguson, J. C. St. Paul
Fesler, H. H. St. Paul
Flanagan, H. F. St. Paul
Fogarty, C. W. St. Paul
Fogelberg, E. J. St. Paul
Foley, F. E. B. St. Paul
Freeman, C. D. St. Paul
Freidman, L. L. St. Paul
Fritz, W. L. St. Paul
Froats, C. W. St. Paul
Gager, E. C. St. Paul

Garbrecht, Arthur. St. Paul
Gardiner, D. G. St. Paul
Geer, E. K. St. Paul
Gehlen, J. N. St. Paul
Geist, G. A. St. Paul
Ghent, C. H. St. Paul
Gibbs, E. C. St. Paul
†Gillillan, J. S. St. Paul
Gilkey, S. E. St. Paul
Ginsberg, Wm. St. Paul
Goltz, E. V. St. Paul
Grant, H. W. St. Paul
Gratzek, Thomas. St. Paul
Graul, R. K. St. Paul
Gruenhagen, A. P. St. Paul
Hagaman, G. K. St. Paul
Hall, A. R. St. Paul
Hall, H. H. St. Paul
Hammes, E. M. St. Paul
Hammond, J. F. St. Paul
Hanson, H. B. St. Paul
Harmon, G. E. St. Paul
Hartfield, W. F. St. Paul
Hartley, E. C. St. Paul
Hassett, M. F. St. Paul
Hauser, V. P. St. Paul
†Heath, A. C. Stillwater
Heck, W. W. St. Paul
Hedenstrom, F. G. St. Paul
Hengstler, W. H. St. Paul
Hensel, C. N. St. Paul
Herman, Samuel. St. Paul
Heron, R. C. St. Paul
Herrmann, E. T. St. Paul
Hertz, M. J. St. Paul
Hilger, A. W. St. Paul
Hilger, D. D. St. Paul
†Hilger, J. A. St. Paul
Hilger, L. A. St. Paul
†Hilger, L. D. St. Paul
Hiniker, L. P. St. Paul
Hochfilzer, J. J. St. Paul
Hoff, Alfred. St. Paul
Hoffman, M. H. St. Paul
†Holcomb, J. T. Marine-on-St. Croix
Holcomb, O. W. St. Paul
Holmen, R. W. St. Paul
Holt, J. E. St. Paul
Hopkins, G. W. St. Paul
Howard, M. A. St. Paul
Howard, W. S. St. Paul
Hullsiek, H. E. St. Paul
†Hullsiek, R. B. St. Paul
Ide, A. W. St. Paul
Ikeda, Kano. St. Paul
Ingerson, C. A. St. Paul
Ittner, G. W., Jr. St. Paul

ROSTER

Jesion, J. W.....St. Paul	Moquin, Marie A.....St. Paul	Setzer, H. J.....St. Paul
Jobanson, W. G.....St. Paul	†Moren, L. A.....St. Paul	Shannon, W. R.....St. Paul
Johnson, A. M.....St. Paul	Moriarty, Berenice.....St. Paul	Shellman, J. L.....St. Paul
Johnson, C. E.....St. Paul	†Morrissey, F. B.....St. Paul	Shillington, M. A.....Glendive, Mont.
Johnson, J. A.....St. Paul	Moss, M. N.....St. Paul	†Shimonek, S. W.....St. Paul
†Johnson, T. H.....San Francisco, Calif.	Muller, R. T.....St. Paul	Short, Jacob.....St. Paul
Jones, E. M.....St. Paul	Naegeli, A. E.....St. Paul	†Simons, L. T.....St. Paul
Kamman, G. R.....St. Paul	Nelson, L. A.....St. Paul	Singer, B. J.....St. Paul
Kannary, E. L.....St. Paul	Nichols, A. E.....St. Paul	Skinner, H. O.....St. Paul
Kaplan, D. H.....St. Paul	Noble, J. F.....St. Paul	Smisek, E. A.....St. Paul
†Karn, J. F.....St. Paul	Noble, J. L.....St. Paul	Smith, V. D. E.....St. Paul
Karon, I. M.....St. Paul	Nuebel, C. J.....St. Paul	Snyder, G. W.....St. Paul
Kasper, E. M.....St. Paul	Nye, Katherine A.....St. Paul	Sohlberg, O. L.....St. Paul
Keefe, Rolland.....St. Paul	Nye, Lillian L.....St. Paul	Sorem, M. B.....St. Paul
Kelly, J. V.....St. Paul	†O'Brien, W. M.....St. Paul	Souster, B. B.....St. Paul
Kelly, P. H.....St. Paul	O'Connor, L. J.....St. Paul	Sprafka, J. M.....St. Paul
Kenefick, E. V.....St. Paul	Oerting, Harry.....St. Paul	Steinberg, C. L.....St. Paul
Kennedy, W. A.....St. Paul	Ogden, Warner.....St. Paul	Stern, E. G.....St. Paul
Kenyon, T. J.....St. Paul	Ohage, Justus, Jr.....St. Paul	Stern, E. R.....St. Paul
Kesting, Herman.....St. Paul	Olson, C. A.....St. Paul	Stern, O. W.....St. Paul
King, G. L.....St. Paul	O'Reilly, B. E.....St. Paul	Stewart, Alexander.....St. Paul
Klein, H. N.....St. Paul	Ostergren, E. W.....St. Paul	Stinnette, S. E.....St. Paul
Knauff, M. K.....St. Paul	Ostergren, Eva-Jane.....St. Paul	Stolpestad, A. H.....St. Paul
Koepsell, A. A. H.....St. Paul	Ouellette, A. J.....St. Paul	Stolpestad, H. L.....St. Paul
Kugler, A. A.....St. Paul	Pearson, F. R.....St. Paul	Strate, G. E.....St. Paul
Kvitrud, Gilbert.....St. Paul	Pearson, M. M.....St. Paul	†Strauss, M. L.....St. Paul
Langenderfer, F. V.....St. Paul	Pederson, A. H.....St. Paul	Swanson, J. A.....St. Paul
Larsen, C. L.....St. Paul	Perry, C. G.....St. Paul	Swenson, J. J.....St. Paul
†Lauer, D. J.....St. Paul	Peterson, D. B.....St. Paul	Teisberg, C. B.....St. Paul
Lax, M. H.....St. Paul	Peterson, H. O.....St. Paul	†Thompson, F. A.....St. Paul
Leahy, Bartholomew.....St. Paul	Peterson, J. L. E.....St. Paul	Thoreson, M. O.....South St. Paul
Leavenworth, R. O.....St. Paul	Peterson, V. N.....St. Paul	Tift, C. R.....St. Paul
Leick, R. M.....St. Paul	Plondke, F. J.....St. Paul	Tracht, R. R.....St. Paul
Leitch, Archibald.....St. Paul	Prendergast, H. J.....St. Paul	Tregilgas, H. R.....South St. Paul
Lepak, J. A.....St. Paul	Radabaugh, R. C.....Hastings	Veirs, Dean.....St. Paul
†Lerche, William.....Cable, Wis.	†Ramsey, W. R.....St. Paul	Veirs, Ruby S.....St. Paul
Leven, N. L.....St. Paul	Rasmussen, R. C.....St. Paul	Venables, A. E.....St. Paul
Levin, Bert.....St. Paul	Rea, C. E.....St. Paul	Von der Weyer, William.....St. Paul
Levitt, G. X.....St. Paul	Richards, E. T. F.....St. Paul	Waas, C. W.....St. Paul
Lick, C. L.....St. Paul	Richardson, H. E.....St. Paul	Walker, A. E.....St. Paul
Lightbourn, E. L.....St. Paul	Rick, P. F. W.....St. Paul	Walter, C. W.....St. Paul
Lippman, H. S.....St. Paul	Ritchie, H. P.....St. Paul	Warnock, R. W.....St. Paul
†Little, W. J.....St. Paul	†Ritchie, W. P.....St. Paul	Warren, C. A.....St. Paul
†Loken, S. M.....St. Paul	Ritt, A. E.....St. Paul	Watz, C. E.....St. Paul
Lowe, E. R.....South St. Paul	Rogers, S. F.....St. Paul	Webber, F. L.....St. Paul
Lowe, T. A.....South St. Paul	Rosenblatt, Louis.....St. Paul	Weis, B. A.....St. Paul
Lundholm, A. M.....South St. Paul	Rosenholtz, Burton.....St. Paul	Weisberg, Maurice.....St. Paul
Lynch, F. W.....St. Paul	Rosenthal, Robert.....St. Paul	Welch, M. C.....St. Paul
	†Rothrock, J. L.....St. Paul	Wenzel, G. P.....St. Paul
Madden, J. F.....St. Paul	†Rothschild, H. J.....St. Paul	Werner, O. S.....Cambridge
†Markoe, J. C.....St. Paul	Roy, P. C.....St. Paul	Wheeler, M. W.....St. Paul
†Marks, R. W.....St. Paul	Ruhberg, G. N.....St. Paul	Whitacre, J. C.....St. Paul
Martin, D. L.....So. St. Paul	Rutherford, W. C.....St. Paul	Whitmore, F. W.....St. Paul
Martineau, J. L.....St. Paul	Ryan, J. J.....St. Paul	Williams, A. B.....St. Paul
Mattson, C. H.....St. Paul	Ryan, J. M.....St. Paul	Williams, C. K.....St. Paul
McCarthy, J. J.....St. Paul	Ryan, M. E.....St. Paul	Williams, J. A.....St. Paul
McCarthy, W. R.....St. Paul	Sarnecki, M. M.....St. Paul	†Williams, G. A.....St. Paul
McClanahan, J. H.....White Bear	Satterlund, V. L.....St. Paul	†Wilson, J. A.....St. Paul
McClanahan, T. S.....White Bear	Savage, F. J.....St. Paul	Wilson, J. V.....St. Paul
McEwan, Alexander.....St. Paul	Schoch, R. B. J.....St. Paul	Winnick, J. B.....St. Paul
†McLaren, Jennette M.....Minneapolis	Schons, Edward.....St. Paul	Wold, K. C.....St. Paul
*McNevin, C. F.....St. Paul	Schultz, F. C.....St. Paul	Wolfe, H. H.....St. Paul
Meade, J. R.....St. Paul	Schulze, A. G.....St. Paul	Wolf, H. J.....St. Paul
Mears, B. J.....St. Paul	Schwytzer, Arnold.....St. Paul	Wolkoff, H. J.....St. Paul
Medelman, J. P.....St. Paul	†Schwyzer, H. C.....St. Paul	Youngren, E. R.....St. Paul
Meyerding, E. A.....St. Paul	Scott, E. E.....St. Paul	Zachman, L. L.....St. Paul
Moga, J. A.....St. Paul	†Senkler, G. E.....St. Paul	Zimmermann, H. B.....St. Paul
Molander, H. A.....St. Paul		

RED RIVER VALLEY MEDICAL SOCIETY

Kittson, Mahnomen, Marshall, Norman, Pennington, Polk, Red Lake and Roseau Counties

Regular meetings, Second Tuesday, February, April and October

Annual meeting, December

Number of Members: 61

President	Ederer, J. J.....Mahnomen	Ohnstad, J. L.....McIntosh
Boardman, D. V.....Twin Valley	Erickson, Eskil.....Halstad	Oppegaard, C. L.....Crookston
Secretary	Griffin, P. J.....Fertile	Oppegaard, M. O.....Crookston
Oppegaard, C. L.....Crookston	Haugseth, Enoch.....Twin Valley	Paradis, W. G.....Crookston
Adkins, C. M.....Thief River Falls	Hedemark, H. H.....Thief River Falls	Parsons, J. G.....Crookston
†Anderson, W. E.....Thief River Falls	Helseth, H. K.....Thief River Falls	Petkevich, F. M.....Red Lake Falls
Anderson, W. S.....Minneapolis	Henney, W. H.....McIntosh	Rice, A. R.....Crookston
Behr, O. K.....Crookston	Hollands, W. H.....Fisher	Rice, H. R.....Roseau
Berge, D. O.....Roseau	Holmstrom, C. H.....Warren	Sather, Allen.....Fosston
Berlin, A. S.....Hallock	Jacobson, C. W.....Thief River Falls	Sather, G. A.....Fosston
Bertelson, O. L.....Crookston	Kirk, G. P.....East Grand Forks	Sather, R. N.....McIntosh
Biedermann, Jacob.....Thief River Falls	Knutson, G. A.....Greenbush	†Sather, R. O.....Crookston
†Blegen, H. M.....Warren	Kostick, W. R.....Fertile	Shaleen, A. W.....Hallock
Boardman, D. V.....Twin Valley	Leitch, N. M.....Warroad	Shedlov, Abraham.....Fosston
Bohl, G. W.....Ada	Loken, Theodore.....Ada	Starekow, M. D.....Thief River Falls
Bratrud, Edward.....Thief River Falls	Low, J. E.....Ronan, Mont.	Stevens, John.....Gonvick
Brink, A. A.....Baudette	Lynde, O. G.....Thief River Falls	Stocking, F. F.....Hallock
Brown, L. L.....Crookston	Melby, O. F.....Thief River Falls	Stuurmanns, S. H.....Ersline
Cameron, J. H.....Ersline	Mercil, W. F.....Crookston	†Teisberg, J. E.....Middle River
Delmore, J. L., Jr.....Roseau	Morley, G. A.....Crookston	Torgerson, W. B.....Oklee
Delmore, J. L., Sr.....Roseau	Nelson, H. E.....Crookston	Uhley, C. G.....Crookston
Derfield, R. S.....Crookston	Norman, J. F.....Crookston	Wilttrout, I. G.....Oslo

ROSTER

REDWOOD-BROWN COUNTY MEDICAL SOCIETY

Regular meetings, Quarterly

Annual meeting, May

Number of Members: 34

President
Fritsche, T. R.New Ulm

Secretary
Fesenmaier, O. B.New Ulm

Abbott, C. B.Springfield
Anderson, E. M.Lamberton
Benton, P. C.Gibbon
Cairns, R. J.Sanborn
Dubbe, F. H.New Ulm
†Dysterheft, A. F.Gaylord
Eaves, G. B.Wabasso
Esser, O. J.New Ulm

Ferguson, W. C.Walnut Grove
Fesenmaier, O. B.New Ulm
Fritsche, Albert.New Ulm
Fritsche, C. J.New Ulm
Fritsche, T. R.New Ulm
Gibbons, F. C.Comfrey
Goblirsch, A. P.Sleepy Eye
Hammermeister, T. F.New Ulm
Hovde, Rolf.Winthrop
Just, H. J.LaFayette
Kusske, A. L.New Ulm
Nuessle, W. G.Springfield
Olson, K. L.Minneapolis

Penk, E. R.Springfield
Peterson, R. A.Vesta
†Reineke, G. F.New Ulm
Saffert, C. A.New Ulm
Schroepel, J. E.Winthrop
Seifert, O. J.New Ulm
Senescall, C. R.Sleepy Eye
Shima, G. J.Sleepy Eye
Vogel, H. A. L.New Ulm
Vogel, J. H.New Ulm
Wahlberg, E. W.Sleepy Eye
Weiser, G. B.New Ulm
Wohlrahe, E. J.Springfield

RENNVILLE COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday of each month

Annual meeting, November

Number of Members: 22

President
Mesker, G. H.Olivia

Secretary
Billings, R. E.Franklin

Adams, R. C.Bird Island
Billings, R. E.Franklin
Brand, W. A.Redwood Falls
Bushard, W. J.Bird Island

†Ceplecha, S. F.Redwood Falls
†Cole, H. B.Redwood Falls
Cole, J. G.Redwood Falls
Cosgriff, J. A.Olivia
Dordal, J.Sacred Heart
Erickson, R. E.Hector
Fawcett, A. M.Renville
Flinn, T. E.Redwood Falls
Gaines, E. C.Buffalo Lake

†Hartmann, C. M.Fairfax
Johnson, O. H.Redwood Falls
Johnson, W. E.Morgan
Lenz, J. R.Morton
Mesker, G. H.Olivia
Passer, A. A.Olivia
Penhall, F. W.Morton
Preisinger, J. W.Renville
Rinke, Eugene.Redwood Falls
Ryan, J. D.Fairfax

RICE COUNTY MEDICAL SOCIETY

Regular meetings, at call

Annual meeting, at call

Number of Members: 30

President
Hanson, A. M.Faribault

Secretary
Weaver, P. H.Faribault

Babcock, F. M.Northfield
Beede, Ethel R.Faribault
Dugan, L. F.Faribault
Dungay, N. S.Northfield
Engberg, E. J.Faribault
Francis, D. W.Morristown
†Haessly, S. B.Faribault

Hanson, A. M.Faribault
Huxley, F. R.Faribault
Kanne, C. W.Faribault
Lexa, F. J.Lonsdale
Lufkin, C. D.Northfield
Lundberg, Ruth I.Faribault
Lyght, C. E.Northfield
McKeon, J. O.Montgomery
Mears, R. F.Northfield
Meyer, P. F.Faribault
Moses, Joseph, Jr.Northfield
Nielsen, A. M.Northfield

Nuetzman, A. W.Faribault
Ould, C. L.Minneapolis
Robilliard, C. M.Faribault
Rohrer, C. A.Waterville
†Rumpf, C. W.Faribault
†Rumpf, W. H.Faribault
Stevenson, F. W.Faribault
Traeger, C. A.Faribault
Warren, F. S.Washington, D. C.
Weaver, P. H.Faribault
West, E. J.Faribault
Wilson, Warren.Northfield

ST. LOUIS COUNTY MEDICAL SOCIETY

Carlton, Cook, Itasca, Lake and St. Louis Counties

Regular meetings, second Thursday every month

Annual meeting, December

Number of Members: 242

President
MacRae, G. C.Duluth

Secretary
Buckley, R. P.Duluth
Abraham, A. L.Duluth

Adams, B. S.Hibbing
Addy, E. R.Gilbert
Ahl, C. W.Hibbing
Akins, W. M.Eveleth
Anderson, H. R.Deer River
†Anderson, C. L.Duluth
Arko, J. L.Hibbing
Armstrong, E. L.Duluth
Athens, A. G.Duluth
Ayres, G. T.Ely

Bagley, C. M.Duluth
Bagley, Elizabeth C.Duluth
Bagley, W. R.Duluth
Bakkila, Henry.Duluth
Bardon, Richard.Duluth
Barney, L. A.Duluth
Barrett, E. E.Duluth
Becker, F. T.Duluth
Bender, J. H.Big Fork
Bepko, Marie K.Cloquet
Berdez, G. L.Duluth
Bianco, A. J.Duluth
Binet, H. E.Grand Rapids
Blakely, C. C.Barnum
Boman, P. G.Duluth
Bowen, R. L.Hibbing
Boyer, S. H., Jr.Duluth
Boyer, S. H., Sr.Duluth
Braun, O. C.Nashwaak
Braverman, N. J.Duluth
Bray, P. N.Duluth
Bray, R. B.Biwabik
Buckley, R. P.Duluth

Butler, J. K.Carlton
Cantwell, W. F.International Falls
Carstens, C. F.Hibbing
Chapman, T. L.Duluth
†Cheney, E. L.Duluth
Chermak, F. G.International Falls
Chesley, Ward B.Virginia
Christensen, C. H.Duluth
Christensen, E. P.Two Harbors
Clapp, Stewart.Duluth
Clark, F. F.Duluth
Clegg, R. S.Duluth
†Clement, T. G.Duluth
Collins, A. N.Duluth
†Collins, H. C.Duluth
Coventry, W. A.Duluth
Coventry, W. D.Duluth
Cunningham, C. B.Virginia

Davies, R. J.Nopeming
Doolittle, L. E.Duluth
Doyle, G. C.Duluth

Eckman, P. F.Duluth
Eckman, R. J.Duluth
Ekblad, J. W.Duluth
Elias, F. J.Duluth
Elliott, W. S.Virginia
Emanuel, K. W.Duluth
Eppard, R. M.Cloquet
Erskine, G. M.Grand Rapids
Estrem, T. A.Hibbing
Ewens, H. B.Virginia

Fankboner, A. V.Buhl
Fawcett, K. R.Duluth
†Fellows, M. F.Duluth
Feuling, J. C.Bovey
Fischer, M. McC.Duluth
Fisketti, Henry.Duluth
Forbes, R. S.Duluth

Gendron, J. F.Grand Rapids
Gillespie, M. G.Duluth
†Gillespie, N. H.Duluth
Goldish, D. R.Duluth
Goodman, C. E.Virginia
†Gowan, L. R.Duluth
†Grabow, J. J.Duluth
†Graham, Robert.Duluth
Grahek, J. P.Ely
Graves, W. N.Duluth

Haney, C. L.Duluth
Hanson, E. O.Cloquet
Harlowe, H. D.Virginia
Harri, E. J.Carlton
Harris, C. N.Hibbing
Hatch, W. E.Duluth
†Hathaway, S. J.Proctor
Hayes, M. F.Nashwaak
Hedberg, G. A.Nopeming
Heiam, W. C.Cook
Hilding, A. C.Duluth
Hill, F. E.Duluth
Hirschboeck, F. J.Duluth
†Hirschfield, M. S.Duluth
Hoff, H. O.Duluth
Honke, R. W.Proctor
Houkom, S. S.Duluth
Hurst, M. M.Hibbing
Hutchinson, Henry.Moose Lake

Jacobson, Clarence.Chisholm
Jensen, T. J.Duluth
Jessico, C. M.Duluth
†Johnson, K. E.Duluth
Jolin, F. M.Bovey
Jolin, R. V.Grand Rapids

Kelly, A. C.Duluth
Kemp, M. W.Moose Lake
Kiesling, I. H.Coleraine
Kingsbury, E. M.Moose Lake

ROSTER

lein, Harry.....Duluth
napp, F. N.....Duluth
ohlbry, C. O.....Duluth
otchevar, F. R.....Eveleth
Kozberg, Oscar.....Moose Lake
raft, Peter.....Duluth
Kuth, J. R.....Duluth
a Bree, R. H.....Duluth
aird, A. T.....Nopeming
enont, C. B.....Virginia
epak, F. J.....Duluth
itman, S. N.....Duluth
oofbourrow, E. H.....Keewatin
ynam, Frank.....Duluth
acfarlane, P. H.....Chisholm
MacRae, G. C.....Duluth
agney, F. H.....Duluth
almstrom, J. A.....Virginia
anley, J. R.....Duluth
marclew, W. J.....Minneapolis
artin, W. C.....Duluth
Mayne, R. M.....Duluth
McCarthy, P. D.....Ely
McComb, C. F.....Duluth
McCoy, Mary K.....Duluth
McDonald, A. L.....Duluth
McHaffie, O. L.....Duluth
McKenna, M. J.....Grand Rapids
McLeod, J. L.....Grand Rapids
McNutt, J. R.....Duluth
ead, C. H.....Duluth
erriman, L. L.....Duluth
Meyer, J. O.....Grand Rapids
Minty, Earl W.....Duluth
oc, R. J.....Duluth
oc, Thomas.....Moose Lake
Mollers, T. P.....Mountain Iron
Monroe, P. B.....Two Harbors
monserud, N. O.....Cloquet
ore, C. W.....Eveleth
orsman, L. W.....Hibbing
ueller, R. F.....Two Harbors
ueller, Selma C.....Duluth
eff, W. S.....Virginia
elson, E. H.....Chisholm

Nelson, L. S.....Hibbing
Nelson, R. L.....Duluth
Nicholson, M. A.....Duluth
Nissen, A. S.....Duluth
Norberg, C. E.....Cloquet
Nutting, R. E.....Duluth
Olson, A. E.....Duluth
Olson, A. O.....Duluth
Palmer, Frances.....Moose Lake
Palmer, H. A.....Black Duck
†Parker, O. W.....Ely
Parker, W. H.....Chisholm
Parson, E. I.....Duluth
Pasek, A. W.....Cloquet
Patch, O. B.....Duluth
Patterson, S. A.....Duluth
Pearsall, R. P.....Virginia
Pedersen, R. C.....Duluth
Pennie, D. F.....Duluth
Peterson, E. N.....Virginia
†Peterson, J. H.....Duluth
Pfuetze, K. H.....Cannon Falls
Plowman, E. T.....Marble
Power, J. E.....Duluth
Puumala, R. H.....Cloquet
Raadquist, C. S.....Hibbing
Raihala, John.....Virginia
†Raiter, F. W. S.....Cloquet
Raiter, R. F.....Cloquet
†Robinson, J. M.....Corning, N. Y.
Rokala, H. E.....Virginia
Rood, D. C.....Duluth
Rosenfield, A. B.....Hibbing
Rowe, O. W.....Duluth
Rowles, E. K.....Coleraine
Rud, N. E.....Two Harbors
†Rudie, P. S.....Duluth
Ryan, W. J.....Duluth
†Sach-Rowitz, Alvan.....Moose Lake
Salter, R. A.....Virginia
Sarff, O. E.....Virginia
Sax, S. G.....Duluth
Scherer, C. A.....Duluth
Schroder, C. H.....Duluth
Schweiger, T. R.....Hibbing

†Seashore, R. T.....Duluth
Shapiro, E. Z.....Duluth
Shastid, T. H.....Duluth
Shaw, A. W.....Virginia
Sher, D. A.....Hibbing
Siegel, J. S.....Virginia
Sinamark, Andrew.....Hibbing
Sisler, C. E.....Grand Rapids
Smith, C. M.....Duluth
Smith, W. R.....Grand Marais
Snyker, O. E.....Ely
Spang, A. J.....Duluth
Spang, J. S.....Duluth
Spicer, F. W.....Duluth
Spurbeck, R. G.....Cloquet
Strathern, M. L.....Gilbert
†Stewart, D. E.....Grand Rapids
Strobel, W. G.....Duluth
Stuart, A. B.....Cloquet
Sutherland, H. N.....Ely
Sutton, Janet B.....Grand Rapids
†Swanson, P. E.....Virginia
†Swedberg, W. A.....Duluth
†Swenson, A. O.....Duluth
Taylor, C. W.....Duluth
Terrell, B. J.....Nopeming
†Tibbetts, M. H.....Duluth
Tilderquist, D. L.....Duluth
Tingdale, Carlyle.....Hibbing
†Trytten, E. G.....Middle River
†Tudor, R. B.....Hibbing
Tuohy, E. L.....Duluth
†Urberg, S. E.....Duluth
Van Valkenberg, J. D.....Floodwood
Vercellini, C. E.....Duluth
†Walker, A. E.....Duluth
Wallace, M. O.....Duluth
Watson, C. G.....Soudan
Webber, E. E.....Duluth
Wells, A. H.....Duluth
Welton, P. C.....Wabasha
†Wheeler, D. W.....Duluth
Winter, J. A.....Duluth
Young, T. O.....Duluth
Zlatovski, M. L.....Duluth

SCOTT-CARVER COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday of the month

Annual meeting, June

Number of Members: 34

President
chimelpfenig, G. T.....Chaska
Secretary
earson, B. F.....Shakopee
odaski, A. A.....Montgomery
uck, F. H.....Shakopee
ervenka, C. F.....New Prague
row, E. R.....Arlington
worak, A. F.....St. Paul
klund, E. J.....Norwood
mmerson, W. S.....Mayer
avel, H. W.....Jordan

Hebeisen, M. B.....Chaska
Juegens, H. M.....Belle Plaine
Klein, J. C.....Shakopee
Kortsch, F. P.....Prior Lake
Kucera, L. J.....Lonsdale
Kucera, S. T.....Lonsdale
Maertz, W. F.....New Prague
Malerich, J. A.....Shakopee
Martin, T. P.....Arlington
Nagel, H. D.....Waconia
Nelson, K. L.....Montgomery
Novak, E. E.....New Prague
Olson, C. J.....Belle Plaine

Ormond, D. T.....Waconia
Pearson, B. F.....Shakopee
Phillips, W. H.....Jordan
Pogue, R. E.....Watertown
Ponterio, J. E.....Shakopee
†Reiter, H. W.....Shakopee
Schimelpfenig, G. T.....Chaska
†Shrader, J. S.....Springfield
Simons, B. H.....Chaska
†Westerman, A. E.....Montgomery
Westerman, F. C.....Montgomery
Wiechman, F. H.....Montgomery
Wunder, H. E.....Shakopee

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

Cottonwood, Jackson, Murray, Nobles, Pipestone and Rock Counties

Annual meeting, November

Number of Members: 64

President
arrison, P. W.....Worthington
Secretary
ork, B. O., Jr.....Worthington
Anderson, O. W.....Luverne
rnold, E. W.....Adrian
almer, A. I.....Pipestone
asinger, H. P.....Windom
asinger, H. R.....Mountain Lake
eckering, Gerrit.....Edgerton
enjamin, W. G.....Pipestone
ofenkamp, F. W.....Luverne
Bong, J. H.....Jasper
rown, A. H.....Pipestone
arlson, J. V.....Westbrook
Chadbourne, A. G.....Heron Lake
hunn, S. S.....Pipestone
ress, P. J.....Ellsworth
eBoer, Hermanus.....Edgerton
oman, V. W.....Lakefield
oms, H. C. A.....Slayton
alloran, W. H.....Jackson

Halpern, D. J.....Brewster
Harrison, P. W.....Worthington
†Heibel, Robert.....Minneapolis
Heiberg, O. M.....Worthington
Hitchings, W. S.....Lakefield
Hoyer, L. J.....Windom
Johnson, R. E.....Worthington
Johnston, L. F.....Slayton
Kilbride, E. A.....Worthington
Kilbride, J. S.....Worthington
Larson, J. T.....Lake Wilson
Lohmann, J. G.....Jasper
Maitland, D. P.....Jackson
Maitland, E. T.....Jackson
†Manson, F. M.....Worthington
McElmeel, E. F.....Pipestone
McLane, Evelyn G.....Jackson
Mork, B. O., Jr.....Worthington
Mork, B. O., Sr.....Worthington
Nealy, D. E.....Adrian
Pankratz, P. J.....Mountain Lake
Pierson, R. F.....Slayton
Piper, W. A.....Mountain Lake

Rogers, C. W.....Heron Lake
Rose, J. T.....Lakefield
Schade, F. L.....Worthington
Schutz, E. S.....Mountain Lake
Schmidt, W. R.....Worthington
Sether, A. F.....Ruthon
Sherman, C. L.....Luverne
Sjostrom, L. E.....Storden
Slater, S. A.....Worthington
Smith, G. G.....Fulda
Sogge, L. L.....Windom
Sorum, F. T.....Jasper
Stanley, C. R.....Worthington
Stevenson, B. M.....Fulda
Stratte, H. C.....Windom
Taylor, E. S.....Worthington
Thorson, E. O.....Luverne
Tofte, Josephine.....Minneapolis
Waller, J. D.....Wilmont
Wells, W. B.....Jackson
Williams, C. A.....Pipestone
Williams, L. A.....Slayton
†Wilson, I. H.....Worthington
†Wright, C. O.....Luverne

ROSTER

STEARNS-BENTON COUNTY MEDICAL SOCIETY

Regular meetings, third Thursday of the month

Annual meeting, third Thursday of December

Number of Members: 54

President
DuBois, J. F.Sauk Center

Secretary
Libert, J. N.St. Cloud

Barnett, J. M.Cold Spring
Baumgartner, F. H.Albany
Beuning, J. B.St. Cloud
Brigham, C. F.St. Cloud
Buscher, J. C.St. Cloud
Clark, H. B.St. Cloud
Donaldson, C. S.Foley
DuBois, J. F.Sauk Center
Engstrom, G. F.Belgrade
Evans, L. M.Sauk Rapids
Fleming, T. N.St. Cloud
Fredlund, M. L.Minneapolis
Freeman, W. L.St. Cloud
Friesleben, William.Sauk Rapids
Gaida, J. B.St. Cloud

Goehrs, G. H.St. Cloud
Goehrs, H. W.St. Cloud
Haberman, Emil.Osakis
Halenback, P. L.St. Cloud
Hemstead, Werner.Fergus Falls
Henry, C. J.Milaca
Johnson, Walfred.Sauk Center
Jones, R. N.St. Cloud
Keithahn, E. E.Kimball
Kern, M. C.Freeport
Kettlewell, R. B.Sauk Center
Kohler, D. W.St. Joseph
Koop, S. H.Richmond
Kuhlmann, August.Melrose
Lewis, C. B.St. Cloud
Libert, J. N.St. Cloud
Mahowald, A.Albany
McDowell, J. P.St. Cloud
Meyer, A. A.Melrose
Musachio, N. F.Foley

Myre, C. R.Paynesville
Nessa, C. B.St. Cloud
Raetz, S. J.Maple Lake
Rathbun, C. A.St. Cloud
Richards, W. B.St. Cloud
Rumpf, W. H.St. Cloud
Sandven, N. O.Paynesville
Schatz, F. J.St. Cloud
Sherwood, G. E.Kimball
Stangl, P. E.St. Cloud
Stewart, N. E.Fort Leonard Wood, Mo.
Street, Bernard.St. Cloud
Sutton, C. S.St. Cloud
Townsend, De Wayne.Brooten
Veranth, L. A.St. Cloud
Walfred, K. A.St. Cloud
Watson, W. J.Holdingford
Wenner, W. T.St. Cloud
Zachman, A. H.Melrose

STEELE COUNTY MEDICAL SOCIETY

Regular meetings, at call

Annual meeting, February

Number of Members: 16

President
Morehead, D. E.Owatonna

Secretary
Wilkowske, R. J.Owatonna

Berghs, L. V.Owatonna
Carlson, V. W.Blooming Prairie

Dewey, D. H.Owatonna
Ertel, E. Q.Ellendale
Hartung, E. H.Claremont
McEnaney, C. T.Owatonna
McIntyre, J. A.Owatonna
Melby, Benedik.Blooming Prairie
Morehead, D. E.Owatonna

Nelson, E. J.Owatonna
Roberts, O. W.Owatonna
Schaefer, J. F.Owatonna
Senn, E. W.Owatonna
Stewart, A. B.Owatonna
Stransky, T. W.Owatonna
Wilkowske, R. J.Owatonna

UPPER MISSISSIPPI MEDICAL SOCIETY

Aitkin, Beltrami, Cass, Clearwater, Crow Wing, Hubbard

Koochiching, Lake of the Woods, Morrison, Todd and Wadena Counties

Regular meetings, Spring, Summer, Fall, Winter

Annual meeting, January

Number of Members: 96

President
Hubin, G. E.Deerwood

Secretary
Badeaux, G. I.Brainerd

Adkins, G. H.Pine River
Badeaux, G. I.Brainerd
Beise, R. A.Brainerd
Borgerson, A. H.Long Prairie
Bosland, H. G.Verndale
Bray, K. E.Park Rapids
Burns, H. A.Ah-Gwah-Ching
Cardle, G. E.Brainerd
Carlson, C. E.Aitkin
Christie, G. R.Long Prairie
Christie, R. L.Long Prairie
Cook, J. M.Staples
Coombs, C. H.Cass Lake
Corrigan, J. E.Spooner
Craig, C. C.International Falls
Davis, L. F.Wadena
Davis, L. T.Wadena
Davis, R. D.Clearbrook
Davis, T. C.Wadena
East, John.Northome
Eiler, John.Park Rapids
Eyles, T. E.Pequot
Fait, R. V.Little Falls
Fitzsimons, W. E.Brainerd
Frost, H. T.Wadena
Garlock, A. V.Bemidji
Garlock, D. H.Bemidji
Gerber, M. P.Brainerd
Ghostley, Mary C.Puposky
Gifford, B. L.Long Prairie

Gilmore, Rowland.Bemidji
Gorenflo, Leila.Cass Lake
Grogan, J. S.Wadena
Groschupf, T. P.Bemidji
Grose, F. N.Clarissa
Halliday, G. J.Brainerd
Haller, William.Bemidji
Hanover, R. D.Littlefork
Hawkinson, J. P.Crosby
Healy, R. T.Pierz
Hiebert, H. L.Topeka, Kans.
Higgs, W. W.Park Rapids
House, Z. E.Cass Lake
Houston, D. M.Park Rapids
Hubbard, O. E.Brainerd
Hubin, E. G.Deerwood
Idstrom, L. G.Minneapolis
Jacobson, D. J.Bemidji
Jamieson, E. F.Brainerd
Johnson, D. L.Little Falls
Johnson, E. W.Bemidji
Kerlan, Irvin.Washington, D. C.
Knights, J. A.Bemidji
Lamb, H. L.Little Falls
Larson, L. J.Bagley
Lee, H. W.Brainerd
Leemhuis, G. H.Aitkin
Lenarz, A. J.Browerville
Lund, W. J.Staples
Mark, Hilbert.Minneapolis
Mason, J. A.International Falls
McCann, D. F.Bemidji
Mitby, I. L.Aitkin
Monahan, R. H.International Falls

Mosby, M. E.Long Prairie
Mulligan, A. M.Brainerd
Murray, R. A.Aitkin
Nelson, N. P.Brainerd
Petraborg, H. T.Aitkin
Pierce, C. H.Wadena
Potek, David.International Falls
Quannstrom, V. E.Brainerd
Ratchliffe, J. J.Aitkin
Reichelderfer, C. F.Staples
Ringle, O. F.Walker
Roberts, L. M.Little Falls
Schulze, W. M.Swanville
Shannon, S. S.Ironton
Silver, Henry.Sebeka
Simons, E. J.Swanville
Simons, S. J.Akeley
Smith, B. A.Crosby
Stafford, C. E.Baudette
Stein, R. J.Pierz
Swedenburg, P. A.Swanville
Thabes, J. A., Jr.Brainerd
Thabes, J. A., Sr.Brainerd
Trommald, Gladys, B. K.Northville, Mich.
Vandersluis, C. W.Bemidji
Watson, A. M.Royalton
Watson, P. T.Cass Lake
Watson, S. W.Royalton
Whitemore, D. D.Bemidji
Will, C. B.Bertha
Will, W. W.Bertha
Wilson, V. O.Minneapolis
Wingquist, C. G.Crosby
Withrow, M. E.International Falls

WABASHA COUNTY MEDICAL SOCIETY

Regular meetings, Spring and Fall

Annual meeting, first Thursday after first Monday in October

Number of Members: 15

President
Glabe, R. A.Plainview

Secretary
Wilson, W. F.Lake City
Bayley, E. C.Lake City

Bouquet, B. J.Wabasha
Bowers, R. N.Lake City
Cochrane, W. J.Lake City
Collins, J. S.Wabasha
Dempsey, D. P.Kellogg
Ellis, E. W.Elgin
Flesche, B. A.Lake City

Glabe, R. A.Plainview
Holt, G. W.Wabasha
Mahle, D. G.Plainview
Ochsner, C. G.Wabasha
Replogle, W. H.Wabasha
Slocumb, J. A.Plainview
Wellman, T. G.Lake City
Wilson, W. F.Lake City

ROSTER

WASECA COUNTY MEDICAL SOCIETY

Regular meetings, none
Annual meeting, January
Number of Members: 8

President	Gallagher, B. J.....Waseca	Olds, G. H.....Waseca
Wadd, C. T.....Janesville	Hottinger, R. C.....Janesville	Spittler, R. O.....New Richland
Secretary	McIntire, H. M.....Waseca	Swenson, O. J.....Waseca
Olds, G. H.....Waseca	Oeljen, S. C. G.....Waseca	Wadd, C. T.....Janesville

WASHINGTON COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday in January, February, March, April, May, September, October
November and December
Annual meeting second Tuesday in December
Number of Members: 18

President	Haines, J. H.....Stillwater	Ruggles, G. McC.....Forest Lake
Johnson, R. G.....Stillwater	Humphrey, W. R.....Stillwater	Samson, E. R.....Stillwater
Secretary	Johnson, R. G.....Stillwater	Sherman, C. H.....Stillwater
Boleyn, E. S.....Stillwater	Josewski, R. J.....Stillwater	Strand E. V.....Bayport
Boleyn, E. S.....Stillwater	Kalinoff, D.....Stillwater	Stuhr, J. W.....Stillwater
Carlson, R. E.....Stillwater	McCarten, F. M.....Stillwater	Thompson, V. C.....Marine-on-St. Croix
	Mingo, F. E.....Hugo	Van Meier, Henry.....Stillwater
	Poirier, J. A.....Forest Lake	Wilkinson, Stella L.....Newport

WATONWAN COUNTY MEDICAL SOCIETY

Regular meeting, at call
Annual meeting, December
Number of Members: 8

President	Bergman, O. B.....St. James	Hagen, O. E.....Butterfield
Bergman, O. B.....St. James	Bratrude, E. J.....St. James	Hammar, L. M.....Butterfield
Secretary	Bregel, F. L.....St. James	McCarthy, W. J.....Madelia
Grimes, H. B.....Madelia	Grimes, H. B.....Madelia	Thompson, Albert.....St. James

WEST CENTRAL MINNESOTA MEDICAL SOCIETY

Big Stone, Pope, Stevens, and Traverse Counties
Regular meetings, second Wednesday, March, May, October, December
Annual meeting October
Number of Members: 28

President	Dahle, M. B.....Glenwood	Lindberg, A. L.....Wheaton
Behmler, F. W.....Morris	Doleman, N. F.....Tintah	Linde, Herman.....Cyrus
Secretary	Eberlin, E. A.....Glenwood	Magnuson, A. E.....Graceville
Linde, Herman.....Cyrus	Elsay, E. McC.....Glenwood	Merrill, Robert.....Morris
Arneson, A. I.....Morris	Elsay, J. R.....Glenwood	McIver, B. A.....Lowry
Behmler, F. W.....Morris	Engdahl, F. W.....Mankato	Mooney, L. P.....Graceville
Bergan, Otto.....Clinton	Ewing, C. F.....Wheaton	Muir, W. F.....Graceville
Polsta, Charles.....Ortonville	Fitzgerald, E. T.....Morris	O'Donnell, D. M.....Ortonville
Laine, C. E.....Morris	Garrow, D. M.....St. Paul	Oliver, C. L.....Graceville
	Giesen, A. F.....Starbuck	Oliver, I. L.....Graceville
	Jarvis, B. W.....Lowry	Ransom, M. L.....Hancock
	Karn, B. R.....Ortonville	

WINONA COUNTY MEDICAL SOCIETY

Regular meetings, first Monday in January, April, July, October
Annual meeting, first Monday in January
Number of Members: 29

President	Heise, W. V.....Winona	Robbins, C. P.....Winona
Loomis, G. L.....Winona	Keyes, J. D.....Winona	Roemer, H. J.....Winona
Secretary	Lindsay, W. V.....Winona	Roth, F. D.....Lewiston
Meinert, A. E.....Winona	Loomis, G. L.....Winona	Satterlee, H. W.....Lewiston
Benoit, F. T.....Winona	Lundquist, C. W.....Winona	Schaefer, Samuel.....Winona
Bruder, V. F. J.....Winona	Mattison, P. A.....Winona	Steiner, I. W.....Winona
Christensen, E. E.....Winona	McLaughlin, E. M.....Winona	Tweedy, G. J.....Winona
Hamlon, J. S.....St. Charles	Meinert, A. E.....Winona	Tweedy, R. B.....Winona
Heise, Herbert.....Winona	Meyer, W. M.....Winona	Walker, G. H.....Winona
Heise, W. F. C.....Winona	Neumann, C. A.....Winona	Wilson, R. H.....Winona
	Page, R. L.....St. Charles	Younger, L. L.....Winona
	Risser, E. D.....Winona	

WRIGHT COUNTY MEDICAL SOCIETY

Regular meetings, quarterly
Annual meeting, second Monday in October
Number of Members: 19

President	Catlin, T. J.....Buffalo	Lee, J. L.....Watertown
Peterson, O. L.....Cokato	Ellison, F. E.....Monticello	Peterson, O. L.....Cokato
Secretary	Greenfield, W. T.....Delano	Phillips, A. E.....Delano
Catlin, J. J.....Buffalo	Grundset, O. J.....Montrose	Ridgway, A. M.....Annandale
Anderson, W. P.....Buffalo	Guilfoile, P. J.....Delano	Roholt, C. L.....Waverly
Bendix, L. H.....Annandale	Hansen, Rorbye.....Monticello	Rolig, D. H.....Howard Lake
Catlin, J. J.....Buffalo	Harriman, L.....Howard Lake	Thielen, R. D.....St. Michael
	Hart, W. E.....Monticello	Thompson, Arthur.....Cokato

ALPHABETIC ROSTER

Key to Symbols: *Deceased; †Affiliate or Associate; ‡In Service

Aagaard, G. N., Jr. Minneapolis
Aanes, A. M. Red Wing
Abbott, C. B. Springfield
Abbott, J. S. St. Paul
†Aborn, W. H. Hawley
Abraham, A. L. Duluth
Abramson, Milton. Minneapolis
†Adair, A. F., Jr. St. Paul
Adams, B. S. Hibbing
Adams, J. M. Minneapolis
Adams, R. C. Bird Island
Adams, R. C. Rochester
Addy, E. R. Gilbert
Adkins, C. M. Thief River Falls
Adkins, G. H. Pine River
Adson, A. W. Rochester
Affeldt, D. E. Kasson
Ahl, C. W. Hibbing
Ahls, J. J. Caledonia
Ahrens, A. E. St. Paul
Ahn, A. H. St. Paul
Aita, J. A. Rochester
Aitkens, H. B. Le Center
Akins, W. M. Eveleth
Albers, G. D. Rochester
Alberts, M. W. St. Paul
Alden, J. F. St. Paul
Alexander, F. H. St. Paul
Alexander, H. A. Minneapolis
Aling, C. A. Minneapolis
Aling, C. P. Minneapolis
Allen, C. C. Austin
Allen, E. V. N. Rochester
Allen, H. W. Minneapolis
Allen, H. B. Austin
Allison, R. G. Minneapolis
Altrow, H. O. Minneapolis
Alvarez, W. C. Rochester
Amberg, Samuel. Rochester
Ambrusko, J. S. Rochester
Anderson, A. G. Minneapolis
Anderson, S. C. Minneapolis
†Anderson, B. M. Rochester
Anderson, C. D. Rochester
†Anderson, C. L. Duluth
Anderson, D. D. Minneapolis
Anderson, D. P., Jr. Austin
†Anderson, E. D. Minneapolis
Anderson, E. M. Rochester
Anderson, E. M. Lamberton
Anderson, E. R. Minneapolis
Anderson, F. J. Minneapolis
Anderson, H. R. Deer River
Anderson, J. K. Minneapolis
Anderson, K. W. Minneapolis
Anderson, M. J. Rochester
Anderson, O. W. Luverne
Anderson, P. A. Minneapolis
Anderson, R. E. Willmar
Anderson, S. H. Red Wing
Anderson, U. S. Minneapolis
†Anderson, W. E. Thief River Falls
Anderson, W. P. Buffalo
Anderson, W. S. Minneapolis
†Andreassen, E. C. Minneapolis
Andresen, K. D. Minneapolis
Andrews, R. N. Mankato
Andrews, R. S. Minneapolis
Andrus, F. C. Minneapolis
Annis, H. B. Minneapolis
Arends, A. L. Cambridge
Arey, S. L. Excelsior
Arko, J. L. Chisholm
Arlander, C. E. Minneapolis
Arling, L. S. Minneapolis
Armstrong, E. L. Duluth
†Armstrong, J. M. St. Paul
Arndt, H. W. Detroit Lakes
Arneson, A. I. Morris
Arnold, Anna W. Minneapolis
Arnold, D. C. Minneapolis
Arnold, E. W. Adrian
Arnkquist, A. S. St. Paul
Arnsen, J. M. Benson
Army, F. P. Preston
Arisvidson, C. G. Minneapolis
Ashburn, F. S. Rochester
Athens, A. G. Duluth
Aune, Martin. Minneapolis
Aurand, W. H. Minneapolis
Aurelius, J. R. St. Paul
Ausman, C. F. St. Paul
Ayres, G. T. Ely

Badeaux, G. I. Brainerd
†Baggenstoss, A. H. Rochester
Bagley, C. M. Duluth
Bagley, Elizabeth C. Duluth
Bagley, W. R. Duluth
Bailey, H. B. Fairmont
Bailey, R. B. Fairmont
Bair, H. L. Rochester
Baken, M. P. Minneapolis
Baker, A. B. Minneapolis
Baker, A. C. Fergus Falls
Baker, A. T. Minneapolis
Baker, E. L. Minneapolis
Baker, G. S. Rochester
Baker, H. R. Hayfield
Baker, Looe. Minneapolis
Baker, N. H. Fergus Falls
Baker, R. L. Hayfield
Bakkila, H. E. Duluth
Balcome, M. M. St. Paul
Baldigo, E. M. Red Wing
Balfour, D. C. Rochester
†Balkin, S. G. Minneapolis
Balmer, A. I. Pipestone
†Barber, J. P. Minneapolis
Bardon, Richard. Duluth
Bargen, J. A. Rochester
Barker, N. W. Rochester
Barnes, A. R. Rochester
Barnes, R. G., Jr. Hastings
Barnett, J. M. Cold Spring
Barney, L. A. Duluth
Barr, L. C. Albert Lea
†Barr, R. N. St. Paul
Barr, W. H. Wells
Barrett, E. E. Duluth
Barron, Moses. Minneapolis
Barry, L. W. St. Paul
Barsness, Nellie O. N. St. Paul
Basinger, H. P. Windom
Basinger, H. R. Mountain Lake
Bass, G. W. Minneapolis
Baumgartner, F. H. Albany
Baxter, S. H. Minneapolis
Bayard, H. F. Minneapolis
Bayley, E. C. Lake City
Beals, Hugh. St. Paul
†Beard, A. H. Minneapolis
Beard, Crowell. Rochester
Becker, F. T. Duluth
Beckering, Gerrit. Edgerton
†Beckjord, P. R. Willmar
Beckman, W. G. Minneapolis
Bedford, E. W. Minneapolis
Beech, R. H. St. Paul
Beede, Ethel R. Faribault
†Beek, H. O. St. Paul
Behmler, F. W. Morris
Behr, O. K. Crookston
Beise, R. A. Brainerd
Beizer, L. H. Rochester
Bell, C. C. St. Paul
†Bell, E. T. Minneapolis
Belote, G. B. Caledonia
†Belzer, M. S. Minneapolis
Bender, J. H. Big Fork
Bendix, L. H. Annandale
Benedict, W. L. Rochester
Benephe, J. L. St. Paul
Benesh, L. A. Minneapolis
Benesh, N. G. Minneapolis
Benham, E. W. Mankato
Benjamin, A. E. Minneapolis
†Benjamin, E. G. Minneapolis
†Benjamin, H. G. Minneapolis
Benjamin, W. G. Pipestone
Benn, F. G. Minneapolis
Bennett, J. K. Rochester
Bennett, W. A. Rochester
Bennion, P. H. St. Paul
Benoit, F. T. Winona
Benson, R. E. Rochester
Bentley, N. P. St. Paul
Benton, P. C. Gibbon
Bepko, Marie K. Cloquet
Berdez, G. L. Duluth
Bergan, Otto. Clinton
Berge, D. O. Roseau
Bergen, C. T. Briceville
Berger, A. G. Minneapolis
†Bergh, G. S. Minneapolis
Bergh, L. N. Montevideo
Berghs, L. V. Owatonna
Bergman, O. B. St. James
Bergquist, K. E. Battle Lake
Berkman, D. M. Rochester
Berkman, J. M. Rochester

Berkwitz, N. J. Minneapolis
Berlin, A. S. Hallock
†Berman, Reuben. Minneapolis
Bernstein, W. C. St. Paul
Bertelson, O. L. Crookston
Bessenes, A. N., Jr. Minneapolis
Bessenes, D. H. Minneapolis
Bessenes, W. A. Minneapolis
Beuning, J. B. St. Cloud
Bianco, A. J. Duluth
Bickel, J. F. St. Paul
Bickel, W. H. Rochester
Biedermann, Jacob. Thief River Falls
Bigelow, C. E. Dodge Center
Billings, R. E. Franklin
Binet, H. E. Grand Rapids
Binger, H. E. St. Paul
Binger, M. W. Rochester
Birnberg, T. L. St. Paul
Black, B. M. Rochester
Black, William. Mankato
Blackwell, W. J. Rochester
Blaisdell, J. S. Rochester
Blake, James. Hopkins
Blake, James A. Hopkins
Blakely, C. C. Barnum
Blakey, A. R. Osakis
Blanchard, H. G. Fairmont
*Blegen, H. M. Warren
Blomberg, W. R. Princeton
Blumenthal, J. S. Columbia Heights
Blumstein, Alex. Minneapolis
Boardman, D. V. Twin Valley
Bock, R. A. St. Paul
Bockman, M. W. H. Minneapolis
Bodaski, A. A. Montgomery
Boeckmann, Egil. St. Paul
Boehme, E. J. Minneapolis
Boehrer, J. J. Minneapolis
Bofenkamp, F. W. Luverne
Bohl, G. W. Ada
Boies, L. R. Minneapolis
Bolender, H. L. St. Paul
Boelyn, E. S. Stillwater
Boline, C. A. Battle Lake
Bolsta, Charles. Ortonville
Boman, P. G. Duluth
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Boody, G. J., Jr. Dawson
Booth, A. E. Minneapolis
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Booren, C. A. Minneapolis
†Borg, J. F. St. Paul
Borgerson, A. H. Long Prairie
Borgeson, E. J. Minneapolis
Borman, C. N. Minneapolis
Bosland, H. G. Verndale
Bossert, C. S. Mora
Bossingham, O. N. Lake Benton
Bottolfson, B. T. Moorhead
Bouma, L. R. St. Paul
†Bouman, H. A. H. Minneapolis
Bouquet, B. J. Wabasha
Bowen, R. L. Hibbing
Bowers, R. N. Lake City
Bowling, H. H. Rochester
Boyd, L. M. Alexandria
Boyer, S. H. Duluth
Boyer, S. H., Jr. Duluth
Boynton, Ruth E. Minneapolis
Boysen, Herbert. Madelia
†Boysen, J. E. Pelican Rapids
Boysen, Peter. Pelican Rapids
Braasch, W. F. Rochester
Bradshaw, S. P. Rochester
Brand, G. D. St. Paul
Brand, W. A. Redwood Falls
†Branham, D. S. Albert Lea
Branton, A. F. Willmar
Branton, B. J. Willmar
Bratrud, A. F. Minneapolis
Bratrud, Edward. Thief River Falls
Bratrude, E. J. St. James
Braun, O. C. Nashua
Braverman, N. J. Duluth
Bray, E. R. St. Paul
†Bray, K. E. Park Rapids
Bray, P. N. Duluth
Bray, R. B. Biwabig
Bregel, F. L. St. James
Brekke, H. J. Minneapolis
Breslow, Lester. Rochester
Briggs, J. F. St. Paul
Brigham, C. F. St. Cloud
Brigham, F. T. Watkin
Brinkley, George V., Jr. Rochester
Brink, A. A. Baudett

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Broders, A. C.	Rochester	†Cheney, E. L.	Duluth	Dahl, G. A.	Mankato
Brodie, W. D.	St. Paul	Chermak, F. G.	International Falls	Dahl, J. A.	Minneapolis
Broker, W. S.	Wadena	Chesley, A. J.	St. Paul	Dahle, M. B.	Glenwood
Brooks, S. M.	Rochester	Chesley, Ward B.	Virginia	Daignault, Oscar.	Benson
Brown, A. E.	Rochester	Christensen, B. H.	Rochester	Daniel, D. H.	Minneapolis
Brown, A. H.	Pipestone	Christensen, C. H.	Duluth	Daniel, L. M.	Minneapolis
†Brown, E. D.	Paynesville	Christensen, E. E.	Winona	Danielson, K. A.	Litchfield
†Brown, E. I.	St. Paul	Christensen, E. P.	Two Harbors	Danielson, Lennox.	Litchfield
Brown, G. E., Jr.	Pine City	Christenson, G. R.	Minneapolis	Darling, J. P.	Rochester
Brown, H. A.	Rochester	Christiansen, Andrew.	St. Paul	†Daugherty, E. B.	Marine-on-St. Croix
Brown, J. C.	St. Paul	Christianson, H. W.	Minneapolis	Daugherty, G. W.	Rochester
Brown, J. R.	Rochester	†Christie, G. R.	Long Prairie	Daugherty, L. E.	St. Paul
Brown, L. L.	Crookston	Christie, R. L.	Long Prairie	Davies, L. T.	Rochester
Brown, M. H.	Rochester	†Christison, J. T.	St. Paul	Davies, R. J.	Nonpeming
Brown, P. W.	Rochester	Chunn, S. S.	Pipestone	Davis, A. C.	Rochester
Browne, H. C., Jr.	Rochester	Clagett, O. T.	Rochester	†Davis, Herbert.	St. Paul
Brownstone, Manuel.	Sandstone	Clapp, Stewart.	Duluth	Davis, I. G.	Rushford
Bruder, V. F. J.	Winona	Clark, F. F.	Duluth	Davis, J. C.	Minneapolis
Brustung, L. A.	Rochester	Clark, H. B.	St. Cloud	Davis, L. F.	Wadena
Brusegard, J. F.	Red Wing	†Clark, H. B., Jr.	St. Paul	Davis, L. T.	Wadena
Brusch, G. C.	Minneapolis	†Clark, H. S.	Minneapolis	Davis, R. D.	Clearbrook
Bryant, F. L.	Minneapolis	Clark, L. W.	Spring Valley	Davis, T. C.	Wadena
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†Buchstein, H. F.	Minneapolis	Clarke, E. K.	St. Paul	Day, Lois A.	Rochester
Buck, F. H.	Shakopee	Clarke, E. T.	Rochester	Dearing, W. H., Jr.	Rochester
Buck, R. M.	Rochester	Clay, L. B.	Minneapolis	De Boer, Hermanus.	Edgerton
Buckley, R. P.	Duluth	*Claydon, D. R.	Red Wing	DeCoursey, D. M.	St. Paul
Buie, L. A.	Rochester	Claydon, L. E.	Red Wing	Dedolph, Karl.	St. Paul
†Bulinski, T. J.	St. Paul	Clegg, R. S.	Duluth	†Dedolph, T. H.	Braham
Bulkley, Kenneth.	Minneapolis	Clement, J. B.	Lester Prairie	Delavan, P. A.	St. Paul
Bunker, B. W.	Anoka	†Clement, T. G.	Duluth	Delmore, J. L., Jr.	Roseau
†Burch, E. P.	St. Paul	Clifford, G. W.	Alexandria	Delmore, J. L.	Roseau
Burch, F. E.	St. Paul	Clifton, T. A.	Chatfield	del Plaine, C. W.	Minneapolis
Burchell, H. B.	Rochester	†Cochrane, B. B.	St. Paul	Demo, P. W.	Wells
Burdon, Phyllis J.	Rochester	Cochrane, R. F.	Minneapolis	Demong, C. V.	Rochester
Burkhardt, R. J.	Rochester	†Cochrane, W. J.	Lake City	†Dempsey, D. P.	Kellogg
Burlingame, D. A.	Minneapolis	†Coddon, W. D.	St. Paul	Denman, A. V.	Mankato
Burnap, W. L.	Fergus Falls	Cohen, S. S.	Oak Terrace	Derauf, B. L.	St. Paul
Burns, F. M.	Milan	Colby, W. L.	St. Paul	Derifield, R. S.	Crookston
Burns, H. A.	Ah-Gwah-Ching	*Cole, H. B.	Redwood Falls	Desjardins, A. U.	Rochester
Burns, L. S.	So. St. Paul	Cole, J. G.	Redwood Falls	Devereaux, T. J.	Wayzata
Burns, M. A.	Milan	Cole, W. H.	St. Paul	Dewey, D. H.	Owatonna
Burns, R. M.	St. Paul	†Collie, H. G.	St. Paul	Dickson, T. H.	St. Paul
Burton, C. G.	St. Paul	Collins, A. N.	Duluth	Diehl, H. S.	Minneapolis
Buscher, J. C.	St. Cloud	†Collins, H. C.	Duluth	Diessner, H. D.	Minneapolis
Bushard, W. J.	Bird Island	Collins, J. S.	Wabasha	Dippel, A. L.	Minneapolis
Busher, H. H.	St. Paul	Colp, E. A.	Robbinsdale	Dittman, G. C.	St. Paul
Butler, John.	Minneapolis	Colvin, A. R.	St. Paul	Dix, C. R.	Rochester
Butler, J. K.	Carlton	Combacher, L. C.	Fergus Falls	Dixon, C. F.	Rochester
Butt, H. R.	Rochester	Comfort, M. W.	Rochester	Dobyns, B. M.	Rochester
Buttner, C. R.	Freeborn	Condit, W. H.	Minneapolis	Dockerty, M. B.	Rochester
Butzer, J. A.	Mankato	Condon, W. B.	Rochester	*Doering, R. E.	Minneapolis
Buzzelle, L. K.	Minneapolis	†Conner, H. M.	Rochester	Dolder, F. C.	Eyota
		Connor, C. E.	St. Paul	Doleman, N. F.	Tintah
		Cook, C. K.	St. Paul	Doman, V. W.	Lakefield
Cable, M. L.	Minneapolis	Cook, E. N.	Rochester	Doms, H. C. A.	Slayton
Cabot, V. S.	Minneapolis	Cook, J. M.	Staples	Donald, C. J., Jr.	Rochester
Cady, L. H.	Minneapolis	Coombs, C. H.	Cass Lake	Donaldson, C. S.	Foley
Cain, C. L.	St. Paul	Cooney, H. C.	Princeton	Donohue, P. F.	St. Paul
Caine, C. E.	Morris	Cooper, C. C.	St. Paul	Donovan, D. E.	Albert Lea
Cairns, R. J.	Sanborn	Cooper, M. D.	Winnebago	Doolittle, L. E.	Duluth
Caldwell, H. W.	Rochester	Cooper, Talbert.	Rochester	Dordal, John.	Sacred Heart
Caldwell, J. P.	St. Paul	Cooperman, H. O.	Minneapolis	Dorge, R. I.	Minneapolis
Calhoun, F. W.	Albert Lea	Corbett, J. F.	Minneapolis	Dornblaser, H. B.	Minneapolis
Call, J. D.	Rochester	Corbitt, R. W.	Rochester	Dorsey, G. C.	Minneapolis
Callahan, F. F.	Pokegama	Corniea, A. D.	Minneapolis	Dovre, C. M.	St. Paul
Callenstrom, G. W.	Minneapolis	†Corrigan, J. E.	Spooner	Dowidat, R. W.	Minneapolis
Cameron, Isabell L.	Minneapolis	Cosgriff, J. A.	Olivia	Downing, G. C.	Rochester
Cameron, J. H.	Ersline	Counsellor, V. S.	Rochester	Dowswell, W. J.	Kerkhoven
Camp, J. D.	Rochester	Countriman, R. S.	St. Paul	Doxey, G. L.	Minneapolis
Camp, W. E.	Minneapolis	Covell, W. W.	St. Peter	Doyle, G. C.	Duluth
Campbell, C. M., Jr.	Rochester	Coventry, M. B.	Rochester	Doyle, L. O.	Minneapolis
Campbell, D. C.	Rochester	Coventry, W. A.	Duluth	Drake, C. B.	St. Paul
Campbell, J. R.	Rochester	Coventry, W. D.	Duluth	Drake, C. R.	Minneapolis
Campbell, O. J.	Minneapolis	Cowern, E. W.	Seattle, Wash.	†Drake, F. A.	Lanesboro
Canfield, W. W.	Houston	Cragg, R. W.	Rochester	Drapiewski, J. F.	Rochester
Cartwell, W. F.	International Falls	Craig, C. C.	International Falls	Dredge, H. P.	Sandstone
Cardle, A. E.	Minneapolis	Craig, W. McK.	Rochester	Drill, H. E.	Hopkins
Cardle, G. E.	Brainerd	Cranmer, R. R.	Minneapolis	Drips, Della G.	Rochester
Carey, J. B.	Minneapolis	Cranston, R. W.	Minneapolis	Drought, W. W.	Fergus Falls
Carlson, C. E.	Aitkin	Creedy, C. D.	Minneapolis	Dry, T. J.	Rochester
Carlson, R. E.	Stillwater	†Creighton, R. H.	Minneapolis	Dubbe, F. H.	New Ulm
Carlson, J. V.	Westbrook	Crenshaw, J. L.	Rochester	Du Bois, J. F.	Sauk Centre
Carlson, Lawrence.	Minneapolis	Cress, P. J.	Ellsworth	Duff, E. R.	Minneapolis
Carlson, L. T.	Minneapolis	Crewe, J. E.	Rochester	Dugan, L. F.	Faribault
Carlson, V. W.	Blooming Prairie	Critchfield, L. R.	St. Paul	Dukelow, D. A.	Minneapolis
Carman, J. E.	Detroit Lakes	Crombie, F. J.	North St. Paul	Dumas, A. G.	Minneapolis
Caron, R. P.	Minneapolis	Cronwell, B. J.	Austin	Duncan, J. W.	Moorhead
Carroll, W. C.	St. Paul	Crow, E. R.	Arlington	Dungay, N. S.	Northfield
Carryer, H. M.	Rochester	Culligan, J. M.	St. Paul	Dunlap, D. L.	Rochester
†Carstens, C. F.	Hibbing	Cumming, H. A.	Minneapolis	Dunlap, E. H.	Minneapolis
†Caspers, C. G.	Minneapolis	Cummings, D. W.	Rushford	Dunn, G. R.	Minneapolis
Catlin, J. J.	Buffalo	Cunningham, B. P.	Rochester	Dunn, J. N.	St. Paul
Catlin, T. J.	Buffalo	Cunningham, C. B.	Virginia	Duryea, W. M.	Minneapolis
†Cavanor, F. T.	Minneapolis	Currens, J. H.	Rochester	†Dutton, C. E.	Minneapolis
†Cepelch, S. F.	Redwood Falls	Curtin, J. F.	Minneapolis	Dvorak, B. A.	Minneapolis
Cervenka, C. F.	New Prague	Curtis, R. A.	Le Center	Dwan, P. F.	Minneapolis
†Chadborn, A. G.	Heron Lake	Cusick, P. L.	Rochester	†Dworak, A. F.	St. Paul
Chadborn, C. R.	St. Paul	Cutts, George.	Minneapolis	Dworsky, S. D.	Minneapolis
†Challman, S. A.	Minneapolis			†Dysterheft, A. F.	Gaylord
Chambers, W. C.	Blue Earth				
Chapman, A. S.	Rochester	Dack, L. G.	St. Paul		

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Earl, GeorgeSt. Paul
Earl, J. R.St. Paul
Earl, Robert.St. Paul
†East, John.Northome
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Eberlin, E. A.Glenwood
Eckdale, J. E.Lyle
Eckhardt, C. L.Austin
Eckman, P. F.Duluth
Eckman, R. J.Duluth
Ederer, J. J.Mahnomen
Edlund, Gustaf.St. Paul
Edwards, J. W.St. Paul
Edwards, R. T.Elysian
Edwards, T. J.St. Paul
Egan, ShermanRochester
Eginton, C. T.Rochester
Ehni, G. J.Rochester
Ehrenberg, C. J.Minneapolis
Ehrlich, S. P.Minneapolis
Eich, Matthew.Minneapolis
Eiler, John.Park Rapids
Eisenstadt, D. H.Minneapolis
Eisenstadt, W. S.Minneapolis
Eitel, G. D.Minneapolis
Ekblad, J. W.Duluth
Eklund, E. J.Norwood
Elias, F. J.Duluth
Elkins, E. C.Rochester
Ellingson, A. R.Detroit Lakes
Elliott, W. S.Virginia
Ellis, E. W.Elgin
Ellison, D. E.Minneapolis
Ellison, F. E.Monticello
Else, E. M.Glenwood
Else, J. R.Glenwood
Ely, O. S.So. St. Paul
Emanuel, K. W.Duluth
Emerson, E. C.St. Paul
Emerson, G. F.Rochester
Emmerson, W. S.Mayer
Emmett, J. L.Rochester
Emond, A. J.Farmington
Endress, E. K.St. Paul
Engberg, E. J.Faribault
Engdahl, F. W.Mankato
Englehart, P. C.Minneapolis
English, J. P.Rochester
Engstrand, O. J.Minneapolis
Engstrom, G. F.Belgrade
Enroth, O. E.White Bear Lake
Eppard, R. M.Cloquet
Erich, J. B.Rochester
†Erickson, A. O.Ivanhoe
Erickson, C. O.Rochester
Erickson, Eskil.Halstad
Erickson, E. W.Rochester
Erickson, R. E.Hector
†Erickson, R. F.Minneapolis
Ericson, R. M.Minneapolis
Ericson, Swan.Le Sueur
Ernest, G. C. H.So. St. Paul
Erskine, G. M.Grand Rapids
Ertel, E. O.Ellendale
†Eshelby, E. C.St. Paul
Esser, John.Perham
Esser, O. J.New Ulm
Estrem, C. O.Fergus Falls
Estrem, T. A.Hibbing
Eusterman, G. B.Rochester
Evans, C. H., Jr.Rochester
†Evans, E. T.Minneapolis
Evans, L. M.Sauk Rapids
Evans, R. D.Minneapolis
†Everts, A. B.Rochester
Ewens, H. B.Virginia
Ewing, C. F.Wheaton
Eyes, T. E.Pequot

Faber, J. E.Rochester
Fahey, E. W.St. Paul
Fahnd, C. T. R.Rochester
Fahl, G. E.Minneapolis
Fair, R. V.Little Falls
Fankboner, A. V.Buhl
Fansler, W. A.Minneapolis
Farrish, R. C.Sherburn
†Farshat, I. J.Minneapolis
Fawcett, A. M.Renville
Fawcett, K. R.Duluth
Fawcett, R. M.Rochester
Feeney, J. M.Minneapolis
Feinstein, J. Y.Grove City
Feldman, F. M.Rochester
†Fellows, M. F.Duluth
Fenger, E. P. K.Oak Terrace
Fenstermacher, R. H.Rochester
Ferguson, F. F.Detroit, Mich.
Ferguson, J. C.St. Paul
Ferguson, W. C.Grove City
†Ferguson, W. J., Jr.Rochester
Ferris, D. O.Rochester

Fesenmaier, O. B.New Ulm
Fesler, H. H.St. Paul
Fetterly, Warren.Minneapolis
Feuling, J. C.Bovey
Field, A. H.Farmington
Figi, F. A.Rochester
Fink, L. W.Minneapolis
Fink, W. H.Minneapolis
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Fischer, M. McC.Duluth
Fisher, I. I.Ceylon
Fisketti, Henry.Duluth
†Fitzgerald, D. F.Minneapolis
Fitzgerald, E. T.Morris
Fitzsimons, W. E.Brainerd
Fjeldstad, C. A.Minneapolis
Flanagan, H. F.St. Paul
Flanagan, L. G.Austin
Fleming, A. S.Minneapolis
Fleming, T. N.St. Cloud
†Flesche, B. A.Lake City
Flinn, J. H.Rochester
Flinn, T. E.Redwood Falls
Flom, M. G.Zumbrota
Fogarty, C. W., Jr.Rochester
Fogarty, C. W.St. Paul
Fogelberg, E. J.St. Paul
Foker, L. W.Minneapolis
Foley, F. E. B.St. Paul
Folken, F. G.Albert Lea
Forbes, R. S.Duluth
Ford, B. C.Marshall
Ford, W. H.Minneapolis
Forney, R. A.Rochester
Foshager, H. T.Clara City
Foss, E. L.Rochester
Foster, M. A.Rochester
Foster, T. N.Rochester
Foster, W. K.Minneapolis
†Fowler, L. H.Minneapolis
Franchere, F. W.Lake Crystal
Francis, D. W.Morristown
Frane, D. B.Minneapolis
Frank, J. E.Marshall
Fredericks, G. M.Minneapolis
Frederickson, Alice C.Willmar
Frederickson, G. U. Y.Willmar
Fredlund, M. L.Minneapolis
Freeman, C. D.St. Paul
Freeman, G. H.St. Peter
Freeman, J. P.Albert Lea
Freeman, W. L.St. Cloud
Freeman, W. N.Perham
Friedman, L. L.St. Paul
Freligh, W. P.Albert Lea
Fricke, R. E.Rochester
Friedell, Aaron.Minneapolis
Friedell, George.Ivanhoe
Friesleben, William.Sauk Rapids
Frisch, F. P.Willmar
Fritsche, Albert.New Ulm
Fritsche, C. J.New Ulm
Fritsche, T. R.New Ulm
Fritz, W. L.St. Paul
†Fritzell, K. E.Minneapolis
Froats, C. W.St. Paul
Frost, E. H.Willmar
Frost, H. T.Wadena
Frost, J. B.Minneapolis
Fugina, G. R.Mankato
Fuller, Alice H.Minneapolis
†Funk, V. K.Oak Terrace

Gaarde, F. W.Rochester
Gager, E. C.St. Paul
Gaida, J. B.St. Cloud
Gaines, E. C.Buffalo Lake
Gallagher, B. J.Waseca
†Galloway, J. B.Minneapolis
Gambill, E. E.Rochester
Gamble, J. W.Albert Lea
Gamble, P. M.Albert Lea
Gammell, J. H.Minneapolis
Garbrecht, A. W.St. Paul
Gardiner, D. G.St. Paul
Gardner, E. L.Minneapolis
Gardner, V. H.Fairmont
Gardner, W. P.Anoka
Garlock, A. V.Bemidji
Garlock, D. H.Bemidji
†Garrow, D. M.St. Paul
Garten, J. L.Minneapolis
Gaviser, David.Princeton
Geer, E. K.St. Paul
Gehlen, J. N.St. Paul
Geist, G. A.St. Paul
Gelbach, P. D.Rochester
Gendron, J. F. X.Grand Rapids
Gerber, M. P.Brainerd
Germino, Charles.Balaton
Ghent, C. H.St. Paul
Ghormley, R. K.Rochester
Ghostley, Mary C.Puposky

Gibbons, F. C.Comfrey
Gibbs, E. C.St. Paul
†Giery, E. O.Minneapolis
Giere, J. C.Minneapolis
Giere, R. W.Minneapolis
Giere, S. W.Benson
Giesen, A. F.Starbuck
†Giessler, P. W.Minneapolis
Giffin, H. M.Rochester
Giffin, H. Z.Rochester
†Gifford, B. L.Long Prairie
Gilbert, M. G.Minneapolis
†Gilfillan, J. S.St. Paul
Gilkey, S. E.St. Paul
Gilles, F. L.Minneapolis
Gillespie, D. R.Rochester
Gillespie, M. G.Duluth
†Gillespie, N. H.Duluth
†Gilman, L. C.Atwater
†Gilmore, Rowland.Bemidji
Gingold, B. A.Minneapolis
Ginsberg, William.St. Paul
Girvin, R. B.Minneapolis
Glabe, R. A.Plainview
Glomset, D. A.Rochester
Glover, R. P.Rochester
Goblirsch, A. P.Sleepy Eye
Goehrs, G. H.St. Cloud
Goehrs, H. W.St. Cloud
Golberg, M. L.Minneapolis
Goldberg, I. M.Minneapolis
Goldish, D. R.Duluth
Goldman, T. I.Minneapolis
†Goldner, M. Z.Minneapolis
Goltz, E. V.St. Paul
Good, C. A., Jr.Rochester
Good, H. D.Minneapolis
Goodman, C. E.Virginia
Gordon, P. E.Minneapolis
Gore, H. R.Rochester
Gorenflo, Leila A.Cass Lake
Gorsuch, M. T.Rochester
Goss, H. C.Glencoe
Gosslee, G. L.Moorhead
†Gowan, L. R.Duluth
†Grabow, J. J.Duluth
Graham, F. M.Rochester
*Graham, Robert.Duluth
Grahek, J. P.Ely
Grandy, A. Margaret.Rochester
Grant, H. W.St. Paul
†Gratzek, F. R.Minneapolis
Gratzek, Thomas.St. Paul
Graul, R. K.St. Paul
Grave, Floyd.Minneapolis
Graves, R. B.Red Wing
Graves, W. N.Duluth
Gray, F. D.Marshall
†Gray, H. K.Rochester
Gray, R. C.Cambridge
Gray, R. F.Marshall
Green, R. G.Minneapolis
Greene, L. F.Rochester
Greenfield, W. T.Delano
Griffin, P. J.Fertile
†Grimes, B. P.St. Peter
Grimes, H. B.Madelia
Grimes, Marian.Minneapolis
Grimmell, W. B.Preston
Grise, W. B.Austin
Griswold, F. E.Hoffman
Grogan, J. S.Wadena
Gronvall, P. R.Minneapolis
Groschupf, T. P. E.Bemidji
Grose, F. N.Clarissa
Gruenhagen, A. P.St. Paul
Grundset, O. J.Montrose
Guernsey, D. E.Rochester
Guilfoile, P. J.Delano
Gullixson, Andrew.Albert Lea
Gully, R. J.Cambridge
Gunderson, N. A.Minneapolis
†Gunlaugson, F. G.Mankato
Gushurst, E. G.Minneapolis
Gustason, H. T.Minneapolis
Guthrie, R. F.Rochester

Habein, H. C.Rochester
Haberman, Emil.Osakis
†Hacking, F. H.Minneapolis
Haes, J. E.Vernon Center
†Haessly, S. B.Faribault
Hagaman, G. K.St. Paul
Hagen, O. E.Butterfield
Hagen, O. J.Moorhead
†Hagen, W. S.Minneapolis
†Haggard, G. D.Minneapolis
Haight, G. G.Audubon
Haines, J. H.Stillwater
Haines, S. F.Rochester
Haisten, A. S.Rochester
Halenbeck, P. L.St. Cloud

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†Johnson, N. A. Santa Monica, Calif.
Johnson, N. P. Minneapolis
Johnson, N. T. Minneapolis
Johnson, O. H. Redwood Falls
Johnson, O. V. Fergus Falls
Johnson, Olga H. Moorhead
Johnson, P. C. Tyler
Johnson, R. A. Minneapolis
Johnson, R. B. Lanesboro
†Johnson, R. E. Minneapolis
Johnson, R. E. Worthington
Johnson, R. G. Stillwater
†Johnson, T. H. San Francisco, Calif.
†Johnson, V. M. Dawson
Johnson, Walfred. Sauk Centre
Johnson, W. E. Morgan
†Johnson, Y. T. Minneapolis
Johnston, L. F. Slayton
Jolin, F. M. Bovey
Jolin, R. V. Grand Rapids
Jones, A. W. Red Wing
Jones, E. M. St. Paul
†Jones, H. W., Jr. Minneapolis
Jones, O. H. Madison Lake
Jones, R. N. St. Cloud
Jones, W. R. Minneapolis
Jordan, L. S. Granite Falls
Josewich, Alexander. Minneapolis
Joseski, R. J. Stillwater
Joss, C. S. Rochester
Joyce, G. L. Rochester
Judd, D. B. Rochester
Judd, E. S., Jr. Rochester
Judd, W. H. Minneapolis
Juergens, H. M. Belle Plaine
Juers, E. H. Red Wing
Juliar, R. O. St. Clair
†Jump, W. C. Kasson
Jurdy, M. J. Minneapolis
Just, H. J. Lafayette

Kaasa, L. J. Albert Lea
Kalin, O. T. Minneapolis
Kalinooff, Demeter. Stillwater
Kallestad, L. L. Hutchinson
Kamman, G. R. St. Paul
Kamp, B. A. Albert Lea
Kannary, E. L. St. Paul
Kanne, C. W. Faribault
Kapernick, J. S. Rochester
Kaplan, D. H. St. Paul
Karleen, C. L. Tracy
Karlstrom, A. E. Minneapolis
Karn, B. R. Ortonville
†Karn, I. F. St. Paul
Karon, I. M. St. Paul
Kasper, E. M. St. Paul
Kath, R. H. Woodlake
Kauffman, E. J. Appleton
Kauffman, W. B. Mankato
Kauffman, W. C. Appleton
Kauvar, A. J. Rochester
Kearney, R. W. Mankato
Keating, F. R., Jr. Rochester
Keefe, R. E. St. Paul
Keith, H. M. Rochester
Keith, N. M. Rochester
Keithahn, E. E. Kimball
Kelby, G. M. Minneapolis
Kelly, A. C. Duluth
Kelly, J. V. St. Paul
Kelly, P. H. St. Paul
Kelsey, C. G. Hinckley
Kemp, A. F. Mankato
Kemp, M. W. Moose Lake
Keneffick, E. V. St. Paul
Kennedy, C. C. Minneapolis
Kennedy, Jane F. Minneapolis
Kennedy, R. L. J. Rochester
Kennedy, W. A. St. Paul
Kenyon, T. J. St. Paul
Keppler, E. J. Rochester
Kerkhof, A. C. Minneapolis
Kerlan, Irvin. Washington, D. C.
†Kern, M. C. Freeport
Kernohan, J. W. Rochester
Kertesz, Geza. Minneapolis
Kesting, Herman. St. Paul
†Kettlewell, R. B. Sauk Center
Keyes, J. D. Winona
Kibbe, O. A. Minneapolis
Kierland, P. E. Alexandria
Kierland, R. R. Rochester
Kiernan, P. C. Rochester
Kiesling, I. H. Coleraine
Kilbride, E. A. Worthington
Kilbride, J. S. Worthington
Kimmel, G. C., Jr. Red Wing
†King, E. A. Minneapolis
King, Frances W. Oak Terrace

King, G. L. St. Paul
King, H. T. Minneapolis
Kingsbury, E. M. Moose Lake
Kinsella, T. J. Minneapolis
Kirk, G. P. East Grand Forks
Kirklin, B. R. Rochester
Kirklin, O. L. Rochester
Kistler, A. J. Minneapolis
Kistler, C. M. Minneapolis
Klein, Harry. Duluth
Klein, H. N. St. Paul
Klein, J. C. Shakopee
Klima, W. W. Stewart
Klinkenberg, R. B. Rochester
Kloos, E. K. Rochester
Knapp, F. N. Duluth
Knapp, M. E. Minneapolis
Knauff, M. K. St. Paul
Knight, R. R. Minneapolis
Knight, R. T. Minneapolis
Knights, J. A. Bemidji
Knutson, G. A. Greenbush
Koelsche, G. A. Rochester
Koenigsberger, Charles. Mankato
Koepcke, G. M. Minneapolis
Koepsell, A. A. H. St. Paul
Kohlbray, C. O. Duluth
Kohler, D. W. St. Joseph
Kolars, J. J. Le Center
Koller, H. M. Minneapolis
Koller, L. R. Minneapolis
Koop, S. H. Richmond
Korchik, J. P. Minneapolis
Kortsch, F. P. Prior Lake
Kostick, W. R. Fertile
Kotchevar, F. R. Eveleth
Koucky, R. W. Minneapolis
†Kozberg, Oscar. Moose Lake
Kraft, Peter. Duluth
Krause, C. W. Fairmont
Kreilkamp, B. L. Rochester
Kreuzer, T. C. Marshall
Krusen, F. H. Rochester
Kucera, F. J. Hopkins
Kucera, L. J. Lonsdale
Kucera, S. T. Lonsdale
Kucera, W. J. Minneapolis
Kugler, A. A. St. Paul
Kuhlmann, August. Melrose
Kusske, A. L. New Ulm
Kuth, J. R. Duluth
Kvale, W. F. Rochester
Kvitrud, Gilbert. St. Paul

La Bree, R. H. Duluth
Laird, A. T. Nopeming
Lajoie, J. M. Minneapolis
Lamb, H. L. Little Falls
Lander, H. H. Rochester
Lang, L. A. Minneapolis
Langenderfer, F. V. St. Paul
Lannin, J. C. Mabel
Lapierre, A. P. Minneapolis
Lapierre, J. T. Minneapolis
Large, H. R. Rochester
Larrabee, W. F., Jr. Rochester
Larsen, C. L. St. Paul
Larsen, F. W. Minneapolis
Larsen, O. O. Detroit Lakes
Larsen, Arnold. Detroit Lakes
Larson, C. M. Minneapolis
Larson, J. T. Lake Wilson
Larson, L. J. Bagley
†Larson, L. M. Minneapolis
Larson, L. M. Oak Terrace
Larson, M. H. Nicollet
Larson, P. N. Minneapolis
Latchem, C. W. Rochester
†Lauer, D. J. St. Paul
La Vake, R. T. Minneapolis
Lax, M. H. St. Paul
Laymon, C. W. Minneapolis
Lazar, H. L. Minneapolis
Leahy, Bartholomew. St. Paul
Leavenworth, R. O. St. Paul
†Leavitt, H. H. Minneapolis
Lebowske, J. A. Minneapolis
Leck, P. C. Austin
Leddy, E. T. Rochester
Lee, H. M. Minneapolis
Lee, H. W. Brainerd
Lee, J. L. Watertown
Lee, W. A. Fergus Falls
Lee, W. N. Madison
Leemhuis, G. H. Aitkin
Lehnhoff, H. J., Jr. Rochester
Leibold, H. H. Parkers Prairie
Leick, R. M. St. Paul
†Leighton, Robert. Evansville
Leitch, Archibald. St. Paul
Leitch, N. M. Warroad
Leland, H. R. Minneapolis

†Leland, J. A. C., Jr. Minneapolis
Leland, J. T. Herman
Lemon, W. S. Rochester
Lenander, M. E. St. Peter
Lenarz, A. J. Brownville
Lenont, C. B. Virginia
Lenz, J. R. Morton
Lenz, O. A. Minneapolis
Leonard, L. J. Minneapolis
Leonard, Samuel. Minneapolis
Leopard, B. A. Albert Lea
Lepak, F. J. Duluth
Lepak, J. A. St. Paul
†Lerche, William. Cable, Wis.
Leven, N. L. St. Paul
Levin, B. G. St. Paul
Levinson, J. P. Rochester
Levitt, G. X. St. Paul
Lewis, A. J. Henning
Lewis, C. B. St. Cloud
Lexa, F. J. Lonsdale
Libert, J. N. St. Cloud
Lick, C. L. St. Paul
Liedloff, A. G. Mankato
Lien, R. J. Rochester
Liffing, W. W. Goodhue
Lightbourn, E. L. St. Paul
Lillehei, E. J. Robbinsdale
Lillie, H. I. Rochester
Lillie, J. C. Rochester
Lima, L. R. Montevideo
Lind, C. J. Minneapolis
Lindahl, W. W. Rochester
Lindberg, A. C. Minneapolis
Lindberg, A. L. Wheaton
Lindberg, V. L. Minneapolis
Linde, Herman. Cyrus
†Lindgren, R. C. Minneapolis
Lindquist, R. H. Minneapolis
Lindsay, W. V. Winona
Linner, H. P. Minneapolis
†Linton, W. B. Minneapolis
Lippman, E. S. Minneapolis
Lippman, H. S. St. Paul
Lippmann, E. W. Hutchinson
†Lipschultz, Oscar. Minneapolis
Lipscomb, P. R. Rochester
Litchfield, J. T. Minneapolis
Litman, A. B. Minneapolis
Litman, S. N. Duluth
Little, A. G., Jr. Rochester
†Little, W. J. St. Paul
Litzenberg, J. C. Minneapolis
Lloyd, H. J. Mankato
†Lohead, D. C. Rochester
Logan, A. H. Rochester
Logan, G. B. Rochester
Logeheil, R. C. Minneapolis
Lohmann, J. G. Jasper
†Loken, S. M. St. Paul
Loken, Theodore. Ada
Lommen, P. A. Austin
†Long, Jesse. Minneapolis
Loofbourrow, E. H. Keewatin
Loomis, E. A. Minneapolis
Loomis, G. L. Winona
Love, F. A. Carlos
Love, J. G. Rochester
†Love, W. R. Rochester
Lovelace, W. R. Rochester
Lovelady, S. B. Rochester
Lovering, Joseph. Rochester
Lovett, Beatrice R. Oak Terrace
Lovshin, L. L. Rochester
Low, J. E. Ronan, Mont.
Lowe, E. R. So. St. Paul
Lowe, T. A. So. St. Paul
Lowry, Elizabeth C. Minneapolis
Lowry, Thomas. Minneapolis
Luck, Hilda. Mankato
Luckey, C. A. Rochester
Luden, Georgine

Victoria, B. C., Canada
Lueck, A. G. Rochester
Luedtke, G. H. Fairmont
Lufkin, C. D. Northfield
†Lufkin, N. H. Minneapolis
Lund, C. J. T. Fergus Falls
Lund, W. J. Staples
Lundberg, Ruth I. Faribault
Lundblad, R. A. Minneapolis
†Lundblad, S. W. Minneapolis
Lundgren, A. C. Minneapolis
Lundholm, A. M. St. Paul
Lundquist, C. W. Winona
Lundquist, E. F. Minneapolis
Lundy, J. S. Rochester
Lyght, C. E. Northfield
Lynam, Frank. Duluth
Lynch, F. W. St. Paul
Lynch, M. J. Minneapolis
Lynch, R. C. Rochester

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Lysne, Myron.....	Minneapolis	McKaig, C. B.....	Pine Island	Morlock, C. G.....	Rochester
Macbeth, J. L.....	St. Clair	McKelvey, J. L.....	Minneapolis	Morrison, A. W.....	Minneapolis
†MacCarty, W. C.....	Rochester	McKenna, J. K.....	Austin	Morrison, Charlotte J.....	Minneapolis
MacCarty, W. C., Jr.....	Rochester	McKenna, M. J.....	Grand Rapids	†Morrisey, F. B.....	St. Paul
MacDonald, A. E.....	Minneapolis	McKenzie, C. H.....	Minneapolis	Morrow, J. J.....	Austin
MacDonald, D. A.....	Minneapolis	McKeon, J. O.....	Montgomery	Morse, M. P.....	Le Roy
Macey, H. B.....	Rochester	McKinlay, C. A.....	Minneapolis	Morse, R. W.....	Minneapolis
Macfarlane, P. H.....	Chisholm	McKinley, J. C.....	Minneapolis	Morsman, L. W.....	Hibbing
Mach, F. B.....	Minneapolis	McKinney, F. S.....	Minneapolis	Mosby, M. E.....	Long Prairie
†Mack, J. J.....	St. Louis, Mo.	McLane, Evelyn G.....	Jackson	Moses, Joseph, Jr.....	Northfield
MacKay, H. J.....	Seattle, Wash.	McLane, W. O.....	Perham	Moss, M. N.....	St. Paul
MacKinnon, D. C.....	Minneapolis	†McLaren, Jennette M.....	Minneapolis	Mouritsen, G. J.....	Fergus Falls
Macklin, W. E., Jr.....	Litchfield	McLaughlin, E. M.....	Winona	Mousel, L. H.....	Rochester
MacLean, A. R.....	Rochester	McLennan, C. E.....	Minneapolis	Mueller, R. F.....	Two Harbors
MacMillan, D. G.....	Triumph	McLeod, J. L.....	Grand Rapids	Mueller, Selma C.....	Duluth
Macmie, J. S.....	Minneapolis	McMahon, L. H.....	Breckenridge	Muir, W. F.....	Graceville
†MacRae, G. C.....	Duluth	McMahon, M. J.....	Green Isle	Muller, R. T.....	St. Paul
Madden, J. F.....	St. Paul	McNeary, D. J.....	Rochester	†Mulligan, A. M.....	Brainerd
Maeder, E. C.....	Minneapolis	*McNevin, C. F.....	St. Paul	Murphy, E. P.....	Minneapolis
Maertz, W. F.....	New Prague	McNutt, J. R.....	Duluth	Murphy, I. J.....	Minneapolis
†Magath, T. B.....	Rochester	McPheeters, H. O.....	Minneapolis	Murray, R. A.....	Rochester
Magney, F. H.....	Duluth	†McQuarrie, Irvine.....	Minneapolis	†Murray, R. A.....	Aitkin
Magnusen, A. E.....	Graceville	Mead, C. H.....	Duluth	Musachio, N. F.....	Foley
Mahle, D. G.....	Plainview	Mead, F. B.....	Rochester	Musgrove, J. E.....	Rochester
Mahowald, Aloys.....	Albany	Meade, J. R.....	St. Paul	Mussey, R. D.....	Rochester
Maino, C. R.....	Rochester	Mears, B. J.....	St. Paul	Myers, J. A.....	Minneapolis
Maitland, D. P.....	Jackson	Mears, R. F.....	Northfield	Myre, C. R.....	Paynesville
Maitland, E. T.....	Jackson	Medelman, J. P.....	St. Paul		
Maland, C. O.....	Minneapolis	Meinert, A. E.....	Winona	Naegeli, A. E.....	St. Paul
Malerich, J. A.....	Shakopee	Meland, E. L.....	Minneapolis	Naegeli, Frank.....	Fergus Falls
Malmstrom, J. A.....	Virginia	Melby, Benedik.....	Bloomington	Nagel, H. D.....	Waconia
Mallory, J. R.....	Duluth	Mellby, O. F.....	Thief River Falls	†Nasiund, A. W.....	Minneapolis
Manlove, F. R.....	Rochester	Melzer, G. R.....	Lyle	Nass, H. A.....	Mabel
†Mann, F. C.....	Rochester	Mercil, W. F.....	Crookston	Nay, R. M.....	Rochester
†Manson, F. M.....	Worthington	Merkert, C. E.....	Minneapolis	Neal, J. M.....	Rochester
†Marley, W. J.....	Minneapolis	Merkert, G. L.....	Minneapolis	Neale, R. M.....	Rochester
Mariette, E. S.....	Oak Terrace	†Merrill, Elisabeth.....	Minneapolis	Nealy, D. E.....	Adrian
Mark, D. B.....	Minneapolis	Merrill, Robert.....	Morris	Neary, R. P.....	Minneapolis
†Mark, Hilbert.....	Minneapolis	Merriman, L. L.....	Duluth	Neel, H. B.....	Albert Lea
Marking, G. H.....	Osseo	Merritt, W. A.....	Rochester	Neff, W. S.....	Virginia
*Markoe, J. C.....	St. Paul	Mesker, G. H.....	Olivia	Nehring, J. P.....	Preston
†Marks, R. W.....	St. Paul	Messler, J. D.....	Rochester	Nelson, E. H.....	Chisholm
Martin, D. L.....	So. St. Paul	Meyer, A. A.....	Melrose	Nelson, E. J.....	Owatonna
Martin, G. M.....	Rochester	Meyer, E. L.....	Minneapolis	Nelson, E. N.....	Minneapolis
Martin, T. P.....	Arlington	†Meyer, J. O.....	Grand Rapids	Nelson, H. E.....	Crookston
Martin, W. C.....	Duluth	Meyer, P. F.....	Faribault	†Nelson, H. S.....	Excelsior
Martineau, J. L.....	St. Paul	†Meyer, W. M.....	Winona	Nelson, K. L.....	Montgomery
Martinson, C. J.....	Wayzata	Meyerding, E. A.....	St. Paul	Nelson, L. A.....	St. Paul
Mason, B. A.....	Rochester	Meyerding, H. W.....	Rochester	Nelson, L. S.....	Hibbing
†Mason, J. A.....	International Falls	Michael, J. C.....	Minneapolis	Nelson, M. C.....	Minneapolis
Masson, D. M.....	Rochester	Michel, H. H.....	Minneapolis	Nelson, M. S.....	Granite Falls
Masson, J. C.....	Rochester	Michelson, H. E.....	Minneapolis	Nelson, N. H.....	Minneapolis
†Matchan, G. R.....	Minneapolis	Mickelson, J. C.....	Mankato	Nelson, N. P.....	Brainerd
Matthews, Justus.....	Minneapolis	Miller, E. W.....	St. Peter	Nelson, O. L. N.....	Minneapolis
Mattill, P. M.....	Oak Terrace	Miller, H. E.....	Minneapolis	Nelson, R. A.....	Fergus Falls
Mattison, P. A.....	Winona	†Miller, Hugo E.....	Minneapolis	Nelson, R. L.....	Duluth
Mattison, R. E.....	Minot, N. D.	Miller, J. C.....	Minneapolis	Nelson, W. I.....	Minneapolis
†Mattson, A. D.....	Atwater	Miller, J. R., Jr.....	Rochester	Nelson, W. O. B.....	Fergus Falls
Mattson, C. H.....	St. Paul	Miller, V. I.....	Mankato	Nesheim, M. O.....	Emmons
Mattson, H. A. N.....	Minneapolis	Miller, W. A.....	New York Mills	Nessa, C. B.....	St. Cloud
Maxeiner, S. R.....	Minneapolis	Mills, J. S.....	Winnebago	Neumaier, Arthur.....	Glencoe
May, W. H.....	Minneapolis	Milton, J. L.....	Minneapolis	Neumann, C. A.....	Winona
†Mayne, R. M.....	Duluth	Minge, R. K.....	Clarkfield	New, G. B.....	Rochester
Mayo, C. W.....	Rochester	Mingo, F. E.....	Hugo	Newhart, Horace.....	Minneapolis
Maytum, C. K.....	Rochester	Minsky, A. A.....	Minneapolis	Nichols, A. E.....	St. Paul
McBroom, D. E.....	St. Paul	Minty, Earl W.....	Duluth	Nichols, D. R.....	Rochester
McCall, C. H.....	Rochester	Mitby, I. L.....	Aitkin	Nicholson, M. A.....	Duluth
McCallig, J. J.....	Rochester	Mitchell, E. C.....	Minneapolis	Nielsen, A. M.....	Northfield
McCann, D. F.....	Bemidji	Mitchell, R. S.....	Grand Meadow	Nilson, H. J.....	North Mankato
McCarten, F. M.....	Stillwater	Moberg, C. W.....	Detroit Lakes	Nimmman, N. N.....	Silver Lake
†McCarthy, Donald.....	Minneapolis	Moe, J. H.....	Minneapolis	Nissen, A. S.....	Duluth
McCarthy, J. J.....	St. Paul	Moe, R. J.....	Duluth	Noble, J. F.....	St. Paul
McCarthy, W. J.....	Madelia	Moe, Thomas.....	Moose Lake	Noble, J. L.....	St. Paul
McCarthy, W. R.....	St. Paul	Moen, J. K., Jr.....	Minneapolis	*Noonan, W. J.....	Minneapolis
McCartney, J. S.....	Minneapolis	Moersch, F. J.....	Rochester	Norberg, C. E.....	Cloquet
McCarthy, P. D.....	Ely	Moersch, H. J.....	Rochester	Nordin, G. T.....	Minneapolis
McClanahan, J. H.....	White Bear Lake	Moga, J. A.....	St. Paul	Nordland, Martin.....	Minneapolis
McClanahan, T. S.....	White Bear Lake	*Moir, W. W.....	Minneapolis	Nordman, W. F.....	Mora
McCloud, C. N., Jr.....	Rochester	Molander, H. A.....	St. Paul	Norman, J. F.....	Crookston
†McComb, C. F.....	Duluth	†Mollers, T. P.....	Mountain Iron	Norris, N. T.....	Caledonia
†McCoy, Mary K.....	Duluth	Monahan, R. H.....	International Falls	Noth, H. W.....	Minneapolis
†McCrimmon, H. P.....	Minneapolis	Monroe, P. B.....	Two Harbors	Novak, E. E.....	New Prague
McDaniel, Orianna.....	Minneapolis	Monserud, N. O.....	Cloquet	Nuebel, C. J.....	St. Paul
McDonald, A. L.....	Duluth	Monson, E. M.....	Minneapolis	Nuesselt, W. G.....	Springfield
McDonald, J. R.....	Rochester	Monson, L. J.....	Canby	Nuetzman, A. W.....	Faribault
McDowell, J. P.....	St. Cloud	Montgomery, Hamilton.....	Rochester	Nutting, R. E.....	Duluth
McEachern, C. G.....	Rochester	Mooney, L. P.....	Graceville	Nydlah, M. J.....	St. Paul
McElmeel, E. F.....	Pipestone	Moquin, Marie A.....	St. Paul	Nye, Katherine A.....	St. Paul
McEnaney, C. T.....	Owatonna	More, C. W.....	Eveleth	Nye, Lillian L.....	St. Paul
McEwan, Alexander.....	St. Paul	Morehead, D. E.....	Owatonna	Nygren, W. T.....	Braham
McFarland, A. H.....	Minneapolis	Moren, Edward.....	Minneapolis	Nylander, E. G.....	Minneapolis
McGandy, R. F.....	Minneapolis	†Moren, L. A.....	St. Paul		
McGeary, G. E.....	Minneapolis	Moreton, R. D.....	Rochester	Oberg, C. M.....	Minneapolis
McGroarty, J. J.....	Easton	Morgan, H. O.....	Amboy	†O'Brien, W. A.....	Minneapolis
McGuigan, H. T.....	Red Wing	Moriarty, Berenice.....	St. Paul	*O'Brien, W. M.....	St. Paul
McHaffie, O. L.....	Duluth	Moriarty, Cecile R.....	St. Paul	Ochsner, C. G.....	Wabasha
McInerney, M. W.....	Minneapolis	Morissette, Leopold.....	Rochester	O'Connor, L. J.....	St. Paul
McIntire, H. M.....	Waseca	Mork, A. H.....	Anoka	Odell, H. M.....	Rochester
*McIntyre, George.....	San Marino, Calif.	Mork, B. O., Jr.....	Worthington	O'Donnell, D. M.....	Ortonville
		Mork, B. O., Sr.....	Worthington		

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 Oerling, Harry St. Paul
 Ogden, Warner St. Paul
 Ohage, Justus, Jr. St. Paul
 Ohnstad, J. L. McIntosh
 Olds, G. H. Waseca
 O'Leary, P. A. Rochester
 Oliver, C. I. Graceville
 Oliver, I. L. Graceville
 Olmanson, E. G. St. Peter
 Olsen, A. M. Rochester
 Olsen, E. G. Minneapolis
 Olson, A. C. Minneapolis
 Olson, A. E. Duluth
 Olson, A. O. Duluth
 Olson, C. A. St. Paul
 Olson, C. J. Belle Plaine
 Olson, D. C. Gaylord
 Olson, E. A. Pine Island
 Olson, F. A. Minneapolis
 Olson, G. E. West Concord
 Olson, J. D. Rochester
 Olson, K. L. Minneapolis
 Olson, L. M. Chisago City
 Olson, O. A. Minneapolis
 Olson, R. G. Minneapolis
 Olson, S. W. Rochester
 Onsgard, L. K. Houston
 Oppegaard, C. L. Crookston
 Oppegaard, M. O. Crookston
 Oppen, E. G. Minneapolis
 O'Reilly, B. E. St. Paul
 Ormond, D. T. Waconia
 Ostergren, E. W. St. Paul
 Ostergren, Eva-Jane St. Paul
 Otto, H. C. Frazee
 Ouellette, A. J. St. Paul
 Ould, C. L. Minneapolis
 Owens, W. A. Montevideo
 Owre, Oscar Minneapolis

Page, R. L. St. Charles
 †Paine, J. R. Minneapolis
 Palen, B. J. Minneapolis
 Palmer, C. F. Albert Lea
 Palmer, Frances Moose Lake
 Palmer, H. A. Blackduck
 Palmer, W. L. Albert Lea
 Pankratz, E. S. Albert Lea
 Pankratz, P. J. Mountain Lake
 Paradis, W. G. Crookston
 †Parker, O. W. Ely
 Parker, R. L. Rochester
 Parker, W. H. Chisholm
 Parkhill, Edith M. Rochester
 Parker, E. I. Duluth
 Parson, L. R. Elbow Lake
 Parson, Lillian B. Elbow Lake
 Parsons, J. G. Crookston
 Parsons, R. L. Monterey
 Pasek, A. W. Cloquet
 Passer, A. A. Olivia
 Patch, O. B. Duluth
 Patterson, H. D. Anoka
 Patterson, S. A. Duluth
 Patterson, W. E. Minneapolis
 Patterson, W. L. Fergus Falls
 Pattison, D. H. Rochester
 Paulson, E. C. Elbow Lake
 Paulson, D. L. Rochester
 Paulson, J. A. Rochester
 Paulson, T. S. Fergus Falls
 Pearsall, R. P. Virginia
 Pearson, B. F. Shakopee
 Pearson, D. J. Rochester
 Pearson, F. R. St. Paul
 Pearson, M. M. St. Paul
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 Pedersen, A. H. St. Paul
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 Pender, J. W. Rochester
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 Penk, E. L. Springfield
 Penn, G. E. Mankato
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 Pennington, R. E. Rochester
 †Pennington, Reuben Minneapolis
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 †Perlman, E. C. Minneapolis
 Perry, C. G. St. Paul
 Perry, T. T. Rochester
 Person, J. P. Alden
 Pertl, A. L. Canby
 Peters, G. A. Rochester
 Petersen, J. R. Minneapolis
 Peterman, M. C. Willmar
 Petersen, P. C. Braham
 Petersen, Thorvald Minneapolis
 Peterson, A. A. Mora
 Peterson, D. B. St. Paul

Peterson, E. N. Virginia
 Peterson, H. O. St. Paul
 Peterson, H. W. Minneapolis
 †Peterson, J. H. Duluth
 Peterson, J. L. E. St. Paul
 Peterson, N. P. Minneapolis
 Peterson, O. H. Minneapolis
 Peterson, O. L. Kokato
 Peterson, P. E. Minneapolis
 Peterson, R. A. Vesta
 Peterson, V. N. St. Paul
 Peterson, W. C. Minneapolis
 Peterson, W. G. Rochester
 Peterson, W. H. Minneapolis
 Petit, L. J. Minneapolis
 Petkevich, F. M. Red Lake Falls
 Petraborg, H. T. Aitkin
 Pewters, J. T. Minneapolis
 Peyton, W. T. Minneapolis
 Pfuertze, K. H. Cannon Falls
 Pfunder, M. C. Minneapolis
 †Phalen, G. S. Rochester
 Phelps, K. A. Minneapolis
 Phillips, A. E. Delano
 Phillips, W. H. Jordan
 Pierce, C. H. Wadena
 Pierson, R. F. Slayton
 Piper, M. C. Rochester
 Piper, W. A. Mountain Lake
 Platou, E. S. Minneapolis
 Platou, R. V. Minneapolis
 Plimpton, N. C., Jr. Rochester
 Plondke, F. J. St. Paul
 Plowman, E. T. Marble
 Plummer, W. A. Rochester
 Pogue, R. E. Watertown
 Pohl, J. F. Minneapolis
 Poirier, J. A. Forest Lake
 Pollard, D. W. Minneapolis
 Polley, H. F. Rochester
 Pollock, D. K. Minneapolis
 Pollock, L. W. Rochester
 Polmester, F. E. Rochester
 Polzak, J. E. Minneapolis
 Ponterio, J. E. Shakopee
 Pool, T. L. Rochester
 Popp, W. C. Rochester
 Poppe, F. H. Minneapolis
 †Potek, David International Falls
 Potter, R. B. Minneapolis
 Potthoff, C. J. Minneapolis
 Power, J. E. Duluth
 Powers, F. H. Rochester
 Prangen, A. D. Rochester
 Pratt, F. J. Minneapolis
 *Pratt, J. A. Minneapolis
 Pratt, J. H., Jr. Rochester
 Preine, I. A. Minneapolis
 Preisinger, J. W. Renville
 Prendergast, H. J. St. Paul
 Preston, F. W. Rochester
 Preston, P. J. Minneapolis
 Prickman, L. E. Rochester
 Priest, R. E. Minneapolis
 Priestley, J. T. Rochester
 Prim, J. A. Minneapolis
 Prins, L. R. Albert Lea
 Proeschel, R. K. Willmar
 †Proffitt, W. E. Minneapolis
 Proshek, C. E. Minneapolis
 Prouditt, C. H. Rochester
 Pruitt, R. D. Rochester
 Pugh, D. G. Rochester
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 Puumala, R. H. Cloquet

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 †Quello, R. O. B. Minneapolis
 †Quinby, T. F. Minneapolis
 Quist, H. W. Minneapolis

Raadquist, C. S. Hibbing
 Radabaugh, R. C. Hastings
 Radcliffe, James, Jr. . . . Rochester
 Raetz, S. J. Maple Lake
 Raihala, John Virginia
 *Raiter, F. W. S. Cloquet
 Raiter, R. F. Cloquet
 †Ramsey, W. R. St. Paul
 Randall, A. M. Ashby
 Randall, L. M. Rochester
 Ransom, M. L. Hancock
 Rasmussen, R. C. St. Paul
 Rasmussen, W. C. Rochester
 Raszkowski, H. J. Rochester
 Ratcliffe, J. J. Aitkin
 Rathbun, C. A. St. Cloud
 Raymond, J. H. Canby
 Rea, C. E. St. Paul
 Reed, C. A. Minneapolis
 Reeve, E. A. T. Elbow Lake
 Reff, A. R. Crookston

Regnier, E. A. Minneapolis
 Reichelderfer, C. F. Staples
 †Reineke, G. F. New Ulm
 †Reiter, H. W. Shakopee
 Rempel, D. D. Lester Prairie
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 Rewbridge, A. G. Minneapolis
 Reynolds, J. S. Minneapolis
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 †Rice, H. G. Moorhead
 Rice, H. R. Roseau
 Richards, E. T. F. St. Paul
 Richards, W. B. St. Cloud
 †Richardson, F. S. Fort Meade, S. D.
 Richardson, H. E. St. Paul
 †Richardson, R. J. Rushford
 Richardson, W. E. Rushford
 Richdori, L. F. Minneapolis
 Rick, P. F. W. St. Paul
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 Rieke, W. W. Wayzata
 Rigler, L. G. Minneapolis
 Rigos, F. J. Rochester
 Rimer, E. W. Breckenridge
 Ringle, O. F. Walker
 Rinkey, Eugene Redwood Falls
 Ripple, R. J. New London
 Risch, R. E. Minneapolis
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 Risser, E. D. Winona
 Ritchie, H. P. St. Paul
 †Ritchie, W. P. St. Paul
 Ritt, A. E. St. Paul
 Rivers, A. B. Rochester
 Rizer, R. I. Minneapolis
 Roan, C. M. Minneapolis
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 Robbins, O. F. Minneapolis
 Roberts, L. J. Minneapolis
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 Roberts, O. W. Owatonna
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 Robilliard, C. M. Faribault
 Robinson, F. J. Rochester
 †Robinson, J. M. Corning, N. Y.
 Robitshek, E. C. Minneapolis
 Rochford, W. E. Minneapolis
 Rodda, F. C. Minneapolis
 Roehke, A. B. Elk River
 Roemer, H. J. Winona
 Rogers, C. W. Heron Lake
 Rogers, S. F. St. Paul
 Rogne, W. G. Spring Grove
 Roholt, C. L. Waverly
 Rohrer, C. A. Waterville
 Rokala, H. E. Virginia
 Rolig, D. H. Howard Lake
 Rood, D. C. Duluth
 Root, G. T. Rochester
 Rose, J. T. Lakefield
 Rosen, Samuel Minneapolis
 Rosenberg, E. F. Rochester
 Rosenblatt, Louis St. Paul
 Rosenfield, A. B. Hibbing
 Rosenholtz, B. I. St. Paul
 Rosenow, E. C. Rochester
 Rosenow, J. H. Rochester
 Rosenthal, F. H. Grand Meadow
 Rosenthal, Robert St. Paul
 Rosenwald, R. M. Minneapolis
 Roskilly, G. C. P. Minneapolis
 Ross, A. J. Minneapolis
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 Roth, F. D. Lewiston
 †Rothrock, J. L. St. Paul
 Rothschild, H. J. St. Paul
 Roust, H. A. Montevideo
 Rowe, O. W. Duluth
 Rowe, W. H. Fairmont
 Rowles, E. K. Coleraine
 Roy, P. C. St. Paul
 Rucker, C. W. Rochester
 Rucker, W. H. Minneapolis
 Rud, N. E. Two Harbors
 Rudell, G. L. Minneapolis
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 Ruhberg, G. N. St. Paul
 †Rumpf, C. W. Faribault
 Rumpf, W. H., Jr. St. Cloud
 †Rumpf, W. H. Faribault
 Russ, F. H. Rochester
 Russ, H. H. Blue Earth
 Russeth, A. N. Minneapolis
 Rusten, E. M. Minneapolis
 Rutherford, W. C. St. Paul

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Ryan, J. J.	St. Paul	Seitz, S. B.	Barnesville	Snyker, O. E.	Ely
Ryan, J. M.	St. Paul	Seldon, T. H.	Rochester	Soderlind, R. T.	Minneapolis
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Sahr, W. G.	Hutchinson	Serkland, J. C.	Rothsay	Sonnese, N. N.	Le Sueur
St. Cyr, K. J.	Osseo	Sessions, J. C.	Minneapolis	Sorem, M. B.	St. Paul
Salterman, B. I.	Minneapolis	Sether, A. F.	Ruthton	Sorum, F. T.	Jasper
Salt, C. G.	Minneapolis	Setzer, H. J.	St. Paul	Souster, B. B.	St. Paul
Salter, R. A.	Minneapolis	Seybold, W. D.	Rochester	Spang, A. J.	Duluth
Samson, E. R.	Stillwater	Shaleen, A. W.	Hallack	Spang, J. S.	Duluth
†Samuelson, L. G.	Mankato	Shannon, S. S.	Ironton	Spang, J. P.	Minneapolis
Samuelson, Samuel	Minneapolis	Shannon, W. R.	St. Paul	Sperling, Louis	Minneapolis
Sandell, S. T.	Oak Terrace	Shaperman, Eva P.	Minneapolis	Spicer, F. W.	Duluth
Sanderson, A. G.	Granite Falls	Shapiro, E. Z.	Duluth	Spink, W. W.	Minneapolis
Sanderson, E. T.	Minnetota	Shapiro, M. J.	Minneapolis	Spittler, R. O.	New Richland
†Sandt, K. E.	Minneapolis	Sharp, D. V.	Minneapolis	Sprafka, J. M.	St. Paul
Sandven, N. O.	Paynesville	Sharpe, W. S.	Minneapolis	Sprague, R. G.	Rochester
Sanford, A. H.	Rochester	Shastid, T. H.	Duluth	Spratt, C. N.	Minneapolis
Sanford, J. A.	Farmington	Shaw, A. W.	Virginia	Spurbeck, R. G.	Cloquet
Sarff, O. E.	Virginia	Shedlov, Abraham	Fosston	Spurzern, R. J.	Anoka
Sarnecki, M. M.	St. Paul	Sheedy, C. L.	Austin	Stafford, C. E.	Baudette
Satersmoen, Theodore	Pelican Rapids	Shelden, I. T.	Rochester	Standard, W. P.	Rochester
Sather, Allen	Fosston	Shelden, W. D.	Rochester	Stanford, C. E.	Minneapolis
Sather, E. R.	Alexandria	Shellman, J. L.	St. Paul	Stangl, P. E.	St. Cloud
Sather, G. A.	Fosston	Shepard, V. D.	Rochester	Stanley, C. R.	Worthington
Sather, R. N.	McIntosh	Sheppard, C. G.	Hutchinson	Stark, F. M.	Rochester
†Sather, R. O.	Crookston	†Sheppard, Fred	Burien, Wash.	Starekow, M. D.	Thief River Falls
Satterlee, H. W.	Lewiston	†Sheppard, P. E.	Hutchinson	Stebbins, T. L.	Minneapolis
Satterlund, V. L.	St. Paul	Sher, D. A.	Hibbing	Steffens, L. A.	Red Wing
Savage, F. J.	St. Paul	Sherman, C. H.	Stillwater	Stein, K. E.	Lakeview
Sawatzky, W. A.	Minneapolis	Sherman, C. L.	Luverne	Stein, R. J.	Pierz
Sax, S. G.	Duluth	Sherman, R. V.	Red Wing	Steinberg, C. L.	St. Paul
Sayre, G. P.	Rochester	Sherwood, G. E.	Kimball	Steiner, I. W.	Winona
Scales, J. R.	Rochester	Shick, R. M.	Rochester	Stelter, L. A.	Minneapolis
Schaaf, F. H. K.	Minneapolis	Shillington, M. A.	Glendive, Mont.	Stemsrud, H. L.	Alexandria
Schade, F. L.	Worthington	Shima, G. J.	Sleepy Eye	Stenstrom, Annette E. T.	Minneapolis
Schaefer, J. F.	Owatonna	†Shimonek, S. W.	St. Paul	Stephan, E. L.	Hinckley
Schaefer, Samuel	Winona	Short, Jacob	St. Paul	Sterner, E. G.	St. Paul
Schaefer, W. G.	Minneapolis	†Shrader, J. S.	Springfield	Sterner, E. R.	St. Paul
Schamber, W. F.	Parkers Prairie	Sidell, C. M.	Rochester	Sterner, O. W.	St. Paul
Schatz, F. J.	St. Cloud	Siegel, Clarence	Battle Lake	Stevens, John	Gonvick
Scheetz, R. J.	Rochester	Siegel, J. S.	Virginia	Stevenson, B. M.	Fulda
Scheiffley, C. H.	Rochester	Siegmann, W. C.	Minneapolis	Stevenson, F. W.	Faribault
†Scheldrup, N. H.	Minneapolis	Silver, Henry	Sebek	Stevenson, W. D., Jr.	Quincy, Ill.
Scherer, C. A.	Duluth	Silver, J. D.	Minneapolis	Stewart, Alexander	St. Paul
Scherer, L. R.	Minneapolis	Simison, Carl	Barnesville	Stewart, A. B.	Owatonna
Schiele, B. C.	Minneapolis	Simison, C. W.	Hawley	†Stewart, D. E.	Grand Rapids
Schmelpfenig, G. T.	Chaska	Simons, B. H.	Chaska	†Stewart, N. E.	Ft. Leonard Wood, Mo.
†Schleinitz, F. B.	Battle Lake	Simons, E. J.	Swanville	Stewart, R. I.	Minneapolis
Schlesselman, G. H.	Anoka	Simons, J. H.	Minneapolis	Stickney, J. M.	Rochester
Schlesselman, J. T.	Mankato	†Simons, L. T.	St. Paul	Stillwell, W. C.	Mankato
Schlicke, C. P.	Rochester	†Simons, S. J.	Akeley	Stillwell, G. G.	Rochester
†Schmidt, G. F.	Minneapolis	Simonson, D. B.	Minneapolis	Stinnette, S. E.	St. Paul
Schmidt, H. W.	Rochester	Simonson, K. M.	Rochester	Stocking, F. F.	Hallack
Schmidt, P. A.	Good Thunder	Simpson, E. D.	Minneapolis	Stoesser, A. V.	Minneapolis
Schmidt, P. G., Jr.	Granite Falls	Sinamark, Andrew	Hibbing	Stolpestad, A. H.	St. Paul
Schmidt, W. R.	Glencoe	Singer, B. J.	St. Paul	Stolpestad, H. L.	St. Paul
Schmidt, W. R.	Worthington	Sinykin, M. B.	Minneapolis	†Stommel, Joseph	Los Angeles, Calif.
†Schmidt, A. F.	Minneapolis	Siperstein, D. M.	Minneapolis	Stout, H. A.	Rochester
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Schmitt, R. L.	Rochester	†Sivertsen, Andrew	Excelsior	Strachauer, A. C.	Minneapolis
†Schneider, H. H.	Santa Monica, Calif.	Sivertsen, Ivar	Minneapolis	Strand, E. V.	Bayport
†Schneider, J. P.	Minneapolis	Sjostrom, L. E.	Storden	Stransky, T. W.	Owatonna
Schneider, P. J.	Adams	Skinner, H. O.	St. Paul	Strate, G. E.	St. Paul
Schneidman, N. R.	Minneapolis	Skjold, A. C.	Minneapolis	Strathern, C. S.	St. Peter
Schoch, R. B. J.	St. Paul	Slater, S. A.	Worthington	Strathern, F. P.	St. Peter
Scholpp, O. W.	Hutchinson	Sloan, Julius	Minneapolis	Strathern, M. L.	Gilbert
Schons, Edward	St. Paul	Slocumb, C. H.	Rochester	†Stratte, A. K.	Pine City
Schottler, G. J.	Dexter	*Slocumb, J. A.	Plainview	Stratte, H. C.	Windom
Schottler, M. E.	Minneapolis	Sluder, F. S., Jr.	Rochester	†Straus, M. L.	St. Paul
Schroder, C. H.	Duluth	Smalley, R. E.	Rochester	†Street, Bernard	St. Cloud
Schroepfel, J. E.	Winthrop	Smisek, E. A.	St. Paul	Strobel, W. G.	Duluth
Schuld, F. C.	St. Paul	Smisek, F. M. E.	Minneapolis	Stroebel, C. F., Jr.	Rochester
Schultz, J. A.	Albert Lea	Smith, A. E.	Minneapolis	Strom, G. W.	Rochester
Schultz, P. J.	Minneapolis	Smith, Archie M.	Minneapolis	†Stromgren, D. T.	Minneapolis
Schulze, A. G.	St. Paul	Smith, A. M.	Minneapolis	Strout, G. E.	Minneapolis
Schulze, W. M.	Swanville	Smith, B. A.	Crosby	Stuart, A. B.	Cloquet
Schunke, G. B.	Rochester	Smith, B. F.	Rochester	Stuhler, L. G.	Rochester
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Schutz, E. S.	Mountain Lake	Smith, F. D.	Rochester	Sturte, J. R.	Minneapolis
Schwartz, V. J.	Minneapolis	Smith, F. H.	Rochester	Stuermans, S. H.	Erskine
Schweiger, T. R.	Hibbing	Smith, F. L.	Rochester	Sullivan, R. M.	Minneapolis
Schwyzler, Arnold	St. Paul	Smith, G. G.	Fulda	Sundt, Mathias	Minneapolis
†Schwyzler, Gustav	Minneapolis	Smith, H. L.	Rochester	Sutherland, C. G.	Rochester
†Schwyzler, H. C.	St. Paul	Smith, H. R.	Minneapolis	Sutherland, H. N.	Ely
Scofield, C. L.	Benson	Smith, K. A.	Rochester	Sutton, C. S.	St. Cloud
Scott, E. E.	St. Paul	†Smith, L. A.	Balaton	Sutton, H. R.	Hoffman
†Scott, F. H.	Minneapolis	Smith, L. A.	Rochester	Sutton, Janet B.	Grand Rapids
Scott, H. G.	Minneapolis	Smith, L. G.	Montevideo	Svien, H. J.	Rochester
Scott, F. M.	Shelbyville, Ind.	Smith, Margaret I.	Minneapolis	Swanson, Cephas	Minneapolis
Sealy, W. B.	Rochester	Smith, M. W.	Red Wing	Swanson, J. A.	St. Paul
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†Seashore, R. T.	Duluth	Smith, N. M.	Minneapolis	Swanson, R. E.	Minneapolis
Seefeld, P. H.	Rochester	Smith, R. L., Jr.	Rochester	Swanson, R. R.	Albert Lea
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		Smith, W. R.	Grand Marais	†Swedenburg, P. A.	Swanville

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†Sweetser, H. B., Sr. Minneapolis
Sweetser, T. H. Minneapolis
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†Swendseen, C. G. Minneapolis
Swenson, J. J. St. Paul
Swensen, R. G. North Branch
†Swenson, A. O. Duluth
Swenson, O. J. Waseca
†Sybilrud, H. W. Bricelyn

Tanner, F. H. Rochester
Tanquist, E. J. Alexandria
Taylor, C. W. Duluth
Taylor, E. S. Worthington
Taylor, J. H. Minneapolis
Teisberg, C. B. St. Paul
†Teisberg, J. E. Middle River
Telford, V. J. Litchfield
Tennison, W. J. Arcadia, Calif.
Terrell, B. J. Nopeming
Tesch, G. H. Elk River
Thabes, J. A. Brainerd
Thabes, J. A., Jr. Brainerd
Thayer, E. A. Truman
Thielen, R. D. St. Michael
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Thomas, G. H. Minneapolis
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Thompson, Arthur. Cokato
Thompson, C. O. Hendricks
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Thompson, V. C. Marine-on-St. Croix
Thompson, W. H. Minneapolis
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Thornell, W. C. Rochester
Thorson, E. O. Luverne
Thorson, S. B. Rochester
Throckmorton, T. D. Rochester
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Thysell, V. D. Hawley
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Tilderquist, D. L. Duluth
Tillisch, J. H. Rochester
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Trandem, C. Elinor. Rochester
Traxler, J. F. Henderson
Tregilgas, H. R. So. St. Paul
Treusch, J. V. Rochester
Trimingham, H. G. L. Rochester
Trommald, Gladys B. K. Northville, Mich.

Troost, H. B. Mankato
Trueman, H. S. Minneapolis
Trutna, T. J. Silver Lake
†Trytten, E. G. Middle River
†Tudor, R. B. Hibbing
Tunstead, H. J. Minneapolis
Tuohy, E. B. Rochester
Tuohy, E. L. Duluth
Turnacliiff, D. D. Minneapolis
Tweedy, G. J. Winona
Tweedy, I. A. Rochester
Tweedy, R. B. Winona
Twyman, R. A. Rochester

Ude, W. H. Minneapolis
Uhley, C. G. Crookston
Uihlein, Alfred. Rochester
Ulrich, H. L. Minneapolis
Underdahl, L. O. Rochester
Undine, C. A. Minneapolis
†Urberg, S. E. Duluth

Vaaler, Torvald. Cannon Falls
Vadheim, A. L. Tyler
Vadheim, J. L. Rochester
†Vail, J. B. Henning
Valentine, W. H. Tracy
Van Demark, R. E. Rochester
Vandersluis, C. W. Bemidji
Van Meier, Henry. Stillwater
Van Valkenberg, J. D. Floodwood
Vaughan, V. M. Truman

Vaughn, L. D. Rochester
Veirs, D. M. St. Paul
Veirs, Ruby J. S. St. Paul
Venables, A. E. St. Paul
Veranth, L. A. St. Cloud
Vercellini, C. H. E. Duluth
Vezina, J. C. Mapleton
Vik, A. E. Minneapolis
Vik, Melvin. Onamia
Vines, R. W. Rochester
Vinnig, M. P. Wells
Vogel, H. A. L. New Ulm
Vogel, J. H. New Ulm
Von der Weyer, W. H. St. Paul

Waas, C. W. St. Paul
Wadd, C. T. Janesville
Wagener, H. P. Rochester
Wahlberg, E. W. Sleepy Eye
Wahlquist, H. F. Minneapolis
Wakefield, E. G. Rochester
Walch, A. E. Minneapolis
Waldron, C. W. Minneapolis
Walfred, K. A. St. Cloud
†Walker, A. E. Duluth
Walker, A. E. St. Paul
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Wallace, M. O. Duluth
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Zlatovski, M. L. Duluth

PROCEEDINGS of the MINNESOTA ACADEMY OF MEDICINE

Meeting of March 11, 1942

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, March 11, 1942. Dinner was served at 7 o'clock and the meeting was called to order at 8 o'clock by the Secretary, Dr. Kenefick, both the President and Vice-President being absent.

There were forty-five members and one guest present.

Minutes of the February meeting were read and approved.

The Secretary read a letter of thanks from Dr. Donald McCarthy, expressing his appreciation for the action taken at the January meeting, in which the members voted to make Dr. McCarthy an Active Member without the presentation of a thesis in view of his Navy service.

There being no further business, the scientific program followed.

ECTOPIC PREGNANCY—AN ANALYSIS OF 102 CONSECUTIVE CASES

WILLIAM P. SADLER, M.D.
Minneapolis

Dr. Sadler, of Minneapolis, read his Inaugural Thesis on the above subject. Lantern slides were shown. (Complete paper to be published later).

Abstract

One hundred two proved cases of ectopic pregnancy were admitted to the Minneapolis General Hospital during the nine year period (1932-1940). Incidence in this hospital is one ectopic for every 174 intrauterine pregnancy.

A survey of the literature shows considerable variation in the total and operative mortality rates. The total mortality in 588 cases was 5.4 per cent and the operative mortality rate in 909 cases was 2.93 per cent. In this series we had a total mortality of 2.94 per cent and an operative mortality of 1 per cent. These favorably low rates are especially noteworthy because of the high percentage of cases admitted in shock. The average incidence of shock reported in the literature is 15 per cent. Twenty-eight (27.4 per cent) of our patients were in varying grades of shock, eight of these being practically moribund.

Definite diagnosis of ectopic pregnancy presents many difficulties. In cases collected from the literature, the percentage of correct diagnoses ranged from 37.5 to 47.7 per cent with an average of 64.6 per cent for 915 cases. In this series a correct diagnosis was made in 56.6 per cent of the cases.

One hundred of our patients were white. The age ranged from 18 to 43 years. Sixty-five or 63.7 per cent were in the decade 25 to 34 years. The number of pregnancies ranged from one to eleven. A period of relative sterility from six to seventeen years occurred in 26.6 per cent of our cases.

The duration of pregnancy in this series was 14 weeks or under in all cases except one secondary abdominal pregnancy at 8 months and one intraligamentous pregnancy at 20 weeks. Location was in the right tube 59 times and 42 times in the left. There were three interstitial pregnancies, (2.9 per cent). Intraligamentous pregnancy is rare. Its occurrence in five of our patients is extremely high.

Thirty-two (31.3 per cent) of our patients had undergone 38 previous laparotomies. This finding supports the observation that previous lower abdominal surgery contributes to the incidence of ectopic pregnancy. There was a low incidence of previous pelvic infection, 18.6 per cent confirmed histologically.

Eighty-nine of these patients had undergone 239 previous pregnancies. Of these, 170 delivered at or near term (71.13 per cent). The number of fruitful pregnancies, (71.13 per cent), is approximately that of the general population, (80 per cent). This indicates the fault is not with the fertilized ovum but the site of implantation. Five recurrent ectopics (4.9 per cent) in this series is high.

Abdominal pain was the predominant symptom. It occurred in 97.1 per cent of the patients. Vaginal bleeding was the next most common symptom. It was present in 76 per cent of our cases. Amenorrhea occurred in 70 per cent of the patients, twenty-four patients missed no periods. Shoulder strap pain was elicited in a high per cent (31 per cent). Abdominal distention in 36 cases is much higher than generally reported by others.

Immediate operation as soon as the diagnosis was definite was the usual procedure. Fifty-three patients were operated upon within one hour to less than twenty-four hours after admission. Expectant treatment is not recommended. Removal of the affected tube only was the operation of choice. Forty-five patients received eighty-two transfusions and there were three reactions (3.6 per cent). A reaction rate of the minor variety of 3.6 per cent compared to the generally estimated rate of 5 to 10 per cent shows that ectopics tolerate transfusion well. Reactions due to presence of intragroup agglutinins and anti Rh agglutinins recently emphasized in late pregnancy would seem not to be feared in early ectopic pregnancy.

The rate of blood sedimentation was markedly accelerated in cases with massive hemorrhage. Routine repeat hemoglobin and erythrocyte determinations proved valuable.

Two cases of tubal endometriosis were demonstrated histologically. Abdominal endometriosis in the upper angle of a previous operative scar was observed in one case.

Incorrect diagnoses can be materially lowered by proper interpretation of the history and evaluation of the clinical and laboratory findings.

Discussion

DR. J. C. LITZENBERG, Minneapolis: I suppose after what Dr. Sadler said, I ought to discuss this paper. There is one thing he has spoken about tonight that is worthy of particular significance, and that is their low percentage of proven previous tubal infections. That has been a question of controversy ever since the question of ectopic pregnancy has been discussed. His last remark about Lawson Tait is classical. But, in connection with that, one is impressed with the philosophy of the older clinicians. Everything that Lawson Tait did was reasoned out by a Frenchman—Dr. Donis. He figured out how ectopic pregnancy should be treated and the whole procedure which Lawson Tait afterwards advocated and confirmed was the philosophy of Donis. There is one classical remark by one gynecologist and obstetrician about the cause of ectopic pregnancy being due almost always to infection of the tubes with which he disagreed and closed his discussion by saying the more careful histologic studies are made in these cases the lower is the incidence of infection; most of them will be found not to be due to salpingitis. Dr. Sadler's percentage due to infection was low and proves that point, and also proves the other point that if these cases are examined histologically they will prove not always to be due to salpingitis; though, of course, some of them are.

As to the question of transfusion, I agree with Dr. Sadler, almost completely. I don't think it is a question of transfusion before, between or during operation, but a question of the time the transfusion is given before operation. The patient should not be transfused too soon before operation, else the transfused blood may be lost. The statement that ectopic pregnancy is a hemorrhagic tragedy sums up the whole thing. The patients are in shock from loss of blood and not from surgical shock. The source of that blood loss should be ligated in order to hurry along the recovery.

There are many things that have been controversial, but these few mentioned by Dr. Sadler are the result of careful analysis. One cause of ectopic pregnancy is salpingitis, but it is not the chief cause. I was reminded of a case I saw in consultation with Dr. Corbett. It was the most remarkable case I have seen in ectopic pregnancy. He had made a correct diagnosis of intraligamentous rupture, operated on her and found there was an intraligamentous ruptured ectopic pregnancy. He thought he better operate that woman extraperitoneally. He thought he cleaned out an ectopic pregnancy in the broad ligament. A few weeks later, when the patient came back to him and said she was getting bigger, he examined her and found she was pregnant—supposedly intra-uterine. Then he thought he had made an error in the diagnosis of the ectopic pregnancy. He watched her through her pregnancy and she came to labor. His diagnosis was correct. She had what is called a false labor and the baby died. I was called in consultation, and I said—you have an abdominal pregnancy. The intraligamentous pregnancy had terminated as an abdominal pregnancy. That was just at the time that the method of taking care of abdominal pregnancy was opening them up, taking out the baby, and leaving the placenta and then allowing it to slowly drain out. Then he had to operate on the woman another time because in the tract of the drainage the woman had a twisting of the tube around this and had a stoppage. He had to operate that woman four times.

A careful analysis from every point of view in over 100 cases of any kind is always of value.

DR. E. A. REGNIER, Minneapolis: I want to compliment Dr. Sadler on his analysis of these 100 cases. His discussion was well presented and brought out all the essential facts pertinent to these cases. The most striking of these facts is the low mortality rate. An operative mortality of 1 per cent in any field of surgery is remarkably low, but most significant in ectopic preg-

nancy. I believe Dr. Sadler will agree that the blood bank at the General Hospital is responsible, in a great measure, for saving the lives of some of these people. I believe that the low operative mortality in this series attests to the fact that diligence on the part of the House Staff and the operators has been well rewarded.

DR. R. T. LA VAKE, Minneapolis: I welcome the opportunity of congratulating Dr. Sadler on this most interesting and instructive thesis. All of us have developed our ideas as to the best approach to the diagnosis and treatment of this condition. I have only agreement and commendation for his conclusions.

Having had occasion to review the files of the Minneapolis General Hospital from 1915 on, it seems to me that before rupture one may expect an error of around 50 per cent in the accuracy of diagnosis, and an error of less than 25 per cent after rupture. The crux of the problem is surgical judgment as to which abdomen should be explored, if in doubt as to diagnosis, and which may be watched. As Dr. Sadler says, we should operate as soon as we are convinced that the history and signs point to a probable ectopic, and should be prepared for blood transfusion. The blood bank has improved tremendously the possibility of success in emergencies. The difficulty of a correct diagnosis is exemplified by the last three cases, in which, in multiple consultations, the diagnosis of ectopic was made. All gave a history of missing a period, spotting, excruciating pain and fainting, and showed slight enlargement and softening of the uterus, and showed a tender mass at the side of the uterus. In one instance under observation the hemoglobin fell 20 points. Two of the three diagnoses proved to be incorrect. One was a very early tubal pregnancy, one was a normal pregnancy complicated by appendicitis, and the other was a normal pregnancy complicated by adhesions from an old operation.

In my opinion, it should be stressed that where a suspicion of possible ectopic exists, a midline incision should always be made. The wisdom of this routine was brought home after watching a surgeon attempt to take care of an interstitial ruptured ectopic through a McBurney incision, used after a thorough study had convinced him that the diagnosis was appendicitis. If the possibility of ectopic exists, use a midline incision.

Now, as to the causes of ectopic pregnancies. It is obvious that any obstruction that will permit the entrance of spermatozoa, but not the egress of the enlarging fertilized ovum, may cause ectopic. In addition, it seems likely, from the phylogenetic history of the fertilized ovum and its usual place of final burrowing in, that, though the usual place of final burrowing is near the fundus, if the fertilized ovum were especially virulent proteolytically, it might burrow in before reaching the uterus; or, if especially weak proteolytically, it might be carried near the internal os before attachment, with the formation of placenta previa. From this standpoint, an ectopic may be regarded as the opposite extreme of the condition furthering placenta previa. This hypothesis is converged upon by the data furnished by those cases where, after an ectopic on one side, a woman successfully passes several fertilized ova through the remaining tube, thereby pointing to the normality of the remaining tube, and yet subsequently she has an ectopic in that tube. This hypothesis, whether correct or incorrect, has the merit of increasing vigilance in watching for an ectopic in the remaining tube. Furthermore, the inherent weakness of the developing fetus, arising from an ovum weak proteolytically, may account in part for the fact that, as compared with prematures of the same age, there is an increased fetal mortality among placenta previa prematures, even where hemorrhage has been slight and delivery has been by Cesarean.

DR. A. G. SCHULZE, Saint Paul: Somebody has referred to the pre-eclamptic and eclamptic toxemias of

(Continued on Page 412)



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REPORTS AND ANNOUNCEMENTS

pregnancy as a disease of theories. One can refer to ectopic pregnancy as being the disease of mistaken diagnosis. There is no other pelvic condition more frequently accused of being present when it is not, or of being overlooked when it is present. In a case where there are signs of rupture and intra-abdominal hemorrhage, the condition is easily diagnosed; but that variety of ectopic pregnancy which is lacking in striking symptoms is more difficult of diagnosis. Nor should one wait and refrain from making a diagnosis until the whole array of textbook symptoms are present. If speed is not an element in the diagnosis, it might be wise to resort to a Friedman test and see what that shows. It may be better to operate and make the diagnosis afterwards. With a midline incision, the whole pelvis can be explored and the appendix removed if need be. Many times the ectopic pregnancy is not on the same side as the one where the patient locates her symptoms.

DR. LITZENBERG: When was the blood bank established?

DR. SADLER: In the Fall of 1937. These cases fall into the group of six years before the blood bank and three years after.

DR. SADLER (in closing): I want to thank you gentlemen for your generous discussion. I may say to Dr. Regnier that, as I showed in Table I, the operative mortality in 900 cases is approximately 3 per cent.

Availability of blood from the blood bank was instrumental in saving two of these women, who received 3600 cc. and 4000 cc. of blood respectively over a period of a few hours. Had we lost them, our mortality would have been 3 per cent instead of the favorably low 1 per cent.

Dr. LaVake brought up several points about the diagnosis of unruptured ectopic. He suggests 50 per cent of unruptured ectopics should be diagnosed—we were not that good. We had thirteen, and of these three were definitely diagnosed; in four, ectopic was suspected; and the diagnosis was missed entirely in six. This was the second admission to the hospital for two of these patients. Another point Dr. LaVake made is about operating for ectopic and finding out your diagnosis is incorrect. Unfortunately, with our system of filing at the General Hospital, it is almost impossible to dig out those cases and give the statistics. I think it would interest you to know that one case we incorrectly diagnosed as ruptured ectopic proved at operation to be a subcapsular rupture of the spleen with massive intraperitoneal hemorrhage.

Dr. Condit announced that Dr. Freeman, member and past president of the Academy, is ill in Abbott Hospital; and he felt the Academy should send him flowers. The Secretary was so instructed.

The meeting adjourned.

E. V. KENEFICK, M.D.

Secretary.

REPORTS and ANNOUNCEMENTS

MEDICAL BROADCAST FOR MAY

The Minnesota State Medical Association broadcasts weekly at 10:15 o'clock every Saturday morning over Station WCCO, Minneapolis, Station WLB, University of Minnesota, and KDAL, Duluth. Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

May 2—Encephalitis

May 9—Poliomyelitis

May 16—Kenny Method

May 23—Crippled Children

May 30—Dental Deformities.

A.M.G.A. GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-eighth annual tournament at Seaview Country Club, Atlantic City, on Monday, June 8. Forty trophies and prizes will be awarded.

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the American Medical Golfing Association. Write Executive Secretary Bill Burns, 2020 Olds Tower, Lansing, Michigan, for an application blank. Participants in the American Medical Golfing Association tournament are required to present their home club handicap, signed by the club secretary, at the first tee on the day of play. No handicap over thirty is allowed. Only Active Fellows of the American Medical Golfing Association may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

JOINT MEETING OF WABASHA, WINONA SOCIETIES

The eleventh annual joint meeting of the Wabasha and Winona County Medical Societies was held April 13 at Buena Vista Sanatorium. Thirty-four persons attended the dinner, at which Dr. Robert A. Glabe of Plainview was toastmaster.

The program arranged by Dr. F. C. Welton, superintendent and medical director of the sanatorium, included the following medical papers:

"Local Manifestations of Constitutional Disease"—Dr. G. L. Loomis of Winona.

"Intrathoracic Tumors" (illustrated with slides)—Dr. T. J. Kinsella of Minneapolis.

Dr. H. Z. Giffin of Rochester, president of the Minnesota State Medical Association, addressed the societies on matters pertaining to public health and medical defense. He explained the functions of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians.

WASHINGTON COUNTY

The monthly meeting of the Washington County Medical Society was held April 14.

After dinner, matters of local interest were considered, after which E. M. Jones, M.D., of Saint Paul gave an illustrated lecture on Periduodenal Hernias. This provoked many questions from the unusualness of this displacement, which were cheerfully and efficiently answered.



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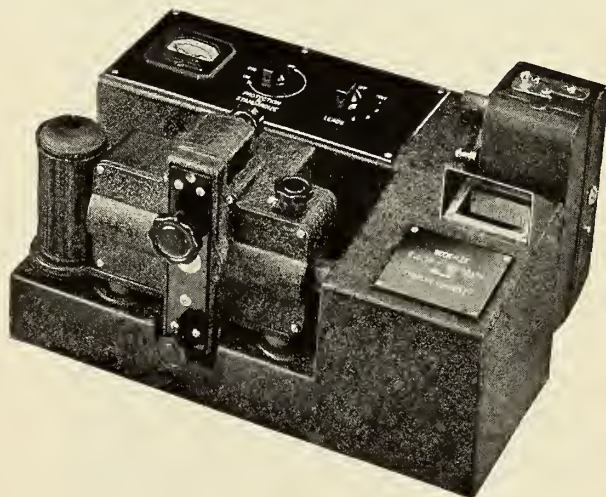
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- GYNECOLOGY**—Two Weeks Intensive Course will be offered starting June 15th and October 19th. One Month Personal Course starting August 3rd. Clinical and Diagnostic Courses every week.
- OBSTETRICS**—Two Weeks Intensive Course will be offered starting October 5th. Three weeks course starting August 10th. Informal course every week.
- OTOLARYNGOLOGY**—Two Weeks Intensive course will be offered starting September 14th. Clinical and Special Courses every week.
- OPHTHALMOLOGY**—Two Weeks Intensive Course will be offered starting September 28th. Five Weeks course in Refraction Methods Starting October 19th. Informal course every week.

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Knollwood, Hopkins, Minnesota

Mrs. John J. Ryan, President of the State Auxiliary, desired that all counties inform her of any change in officers. Also, any Auxiliary members going to the American Medical Association convention in Atlantic City, should be sure to communicate with her regarding a delegate's card.

The revision committee composed of Mrs. John J. Ryan and Mrs. J. S. Reynolds, with Mrs. M. S. Henderson, as chairman, met April 14 to consider changes in the State Auxiliary constitution.

Last call for reservations for the Twentieth Annual Convention of the Woman's Auxiliary to the American Medical Association, to be held at Haddon Hall, Atlantic City, New Jersey, June 8-12.

Atlantic City extends a hearty welcome to you!

County News

Stearns-Benton.—The regular dinner meeting of the Stearns-Benton Medical Auxiliary was held at Hays House, St. Cloud, Thursday, March 27. Mrs. P. E. Barringer presided. Plans for a post Easter card party were made and Mrs. J. P. McDowell was appointed to take charge. Out-of-town members present were: Mmes. S. H. Koop, Richmond, E. E. Keithohn, Kimball, and Joseph Barnett, Cold Spring. After the business meeting, the group attended an illustrated lecture on Vitamins given by Dr. J. J. Boehrler, University of Minnesota.

Goodhue.—The March meeting of the Auxiliary was held at the home of Mrs. H. Claydon, Red Wing. There was a rehearsal of the puppet show on Preventive Medicine. As a special project, it was voted to furnish a room at the Cannon Falls Tuberculosis Sanatorium. Mrs. L. E. Claydon assisted in serving the buffet lunch which followed.

Ramsey.—At the recent State Auxiliary Board meeting, Mrs. Mark Ryan gave a most interesting report of concentrated efforts in different phases of Red Cross work. To date the number of working hours members have put into this work includes the following:

- Knitting, 2,650.
- Nutrition classwork, 200.
- Home Nursing Classes, 160.
- Sewing, 1,115.
- Surgical dressings, 2,255.
- First aid class, 275.
- Canteen work, 75.

Mrs. Edward V. Goltz was chairman of the entertainment committee for visiting women of the 26th annual session of the American College of Physicians held in Saint Paul April 20-24.

On Monday a welcoming tea was given at the University Club at which the Ramsey County Auxiliary was co-hostess, Mrs. Douglas Brand and Mrs. Harry Ghent representing the Auxiliary.

On Tuesday a luncheon and style revue was given at the Hotel Lowry and members and guests attended the entertainment in the evening furnished by the Ramsey County Medical Society in the theater of the municipal Auditorium.

On Wednesday a tour of the Radiation Therapy Department of the University of Minnesota was made in the morning, followed by luncheon at the Coffman

Memorial Union. The President's reception and dance was held at Hotel Lowry in the evening.

On Thursday a breakfast for members and guests was given at the Lowry Hotel, followed by a tour of the city. The annual banquet of the college was held in the ballroom of the Lowry Hotel in the evening.

St. Louis.—The March meeting of the Auxiliary took place at the Woman's Club.

Duluth medical women have gone a long way in doing their part in war work. They have contributed a remarkable amount of material and assistance in various forms of National Defense and International war relief since the latter part of last year. In coöperation with the Civilian Defense Council and the American Red Cross, the St. Louis Auxiliary helped institute a program to train women for actual defense occupations. The Women's Volunteer office was opened November 24 at 210 Alworth Building, under the direction of Mrs. D. W. Wheeler and seventy-five volunteer assistants. This office is maintained by the auxiliary members Mondays through Fridays from 10:00 a.m. to 4:30 p.m. and from 10:00 a.m. to 1:00 p.m. Saturdays, for women who wish to sign up for nutrition classes, motor corps, first aid, canteen corps, and nurses' aides.

Hennepin.—The Auxiliary held its thirty-first annual post-Easter party Monday, April 6, to raise funds for its philanthropies. Contributions are given for Cancer Control work; to Sarahurst, a rehabilitation home for former tuberculosis patients; for the book fund at Glen Lake Sanatorium; and for a medical service fund which is used in isolated cases by Hennepin County Medical Society.

Mrs. R. S. Ylvisaker, chairman, and Mrs. M. H. Seifert, co-chairman, were assisted by the key women in the various units over the city. Because of the serious times, twenty-two units chose to contribute money, while five groups had parties. Considering everything, the undertaking was very successful.

Renville.—The regular meeting of the Renville County Auxiliary was held in Olivia, Tuesday, March 9.

State Board Meeting

The mid-winter board meeting of the Woman's Auxiliary was held Friday, March 20, at the Curtis Hotel in Minneapolis. County presidents and the different committee chairmen in attendance gave brief reports of their year's work.

A letter of resignation from Mrs. W. W. Moir, president-elect, was read. Mrs. R. J. Josewski, Stillwater, was elected to fill this vacancy. Mrs. J. R. Peterson, Minneapolis, was elected to fill the office of first vice president.

The nominating committee chosen by the assembly consists of the following members: Mrs. James Blake, Sr., Hopkins; Mrs. A. J. Bianco, Duluth; Mrs. Edmund W. Miller, St. Peter; Mrs. Harold Wahlquist, Minneapolis; Mrs. E. M. Hammes, Saint Paul.

The luncheon following the meeting was arranged by Mrs. J. M. Neal, Minneapolis. About forty were present. Dr. Ernest Lundy, Rochester, was the guest speaker and presented talks and film productions on "First Aid" and "Firebombs."



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◆ OF GENERAL INTEREST ◆

Dr. Frank Adair of Saint Paul, lieutenant in the United States Naval Reserve, went to San Diego, April 15, to report for active duty.

* * *

Dr. Northrop Beach, pediatrician, opened offices April 1 at 301 Kenwood Parkway in Minneapolis. He recently completed a fellowship at the University of Minnesota Hospitals.

* * *

Dr. Owen H. Wangensteen, head of the department of surgery at the University of Minnesota Medical School, presented a paper at the meeting of the American Surgical Association in Cleveland, April 6.

* * *

Dr. J. Allen Wilson of Saint Paul is stationed with the United States Navy in Philadelphia, having been called for active duty, March 30. Dr. Wilson holds the rank of lieutenant commander.

* * *

Dr. Earl R. Crow, who has been located at Arlington for the past thirteen years, has gone to Walker where he has accepted a position at the Ah-Gwah-Ching sanitarium.

* * *

Dr. H. T. Sherman who has been practicing at Kasson has moved to Zumbrota to take over the practice

of Dr. Leon A. Schafer who has been called to active service in the army medical corps.

* * *

Dr. R. O. Quello of Minneapolis and Dr. Leslie A. Moren of Saint Paul left April 15 for a month's training period at Fort Ripley, Little Falls, with the Minnesota Defense Force. Dr. Quello is a major in the medical unit, and Dr. Moren, a captain.

* * *

Dr. Paul Kabler of the State Department of Health, Minneapolis, reported at Fort Sill, Oklahoma, April 1, to join the United States General Hospital Unit No. 26. Dr. Kabler, a captain in the Medical Corps, has been assigned to the Laboratory Service with the unit.

* * *

The marriage of Dr. George Howard Hall of Minneapolis, who is now in training at Fort Sill, Oklahoma, with the United States General Hospital Unit No. 26, and Miss Ruth Apitz of Hannock took place in Minneapolis, February 19. Dr. Hall is a first lieutenant in the Surgical Service.

* * *

Sons have been born to Dr. and Mrs. Lyle Hay (April 1), and to Dr. and Mrs. George Bergh (April 15). Dr. Hay and Dr. Bergh are both with the surgical service of the United States General Hospital Unit No. 26

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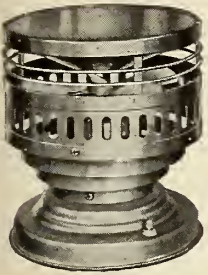
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* * *

Speakers at the annual meeting of the Medical Society of the State of New York in New York City, April 27-30, included Dr. J. A. Bargaen of Rochester, "Chemotherapy in the Digestive System," and Miss Elizabeth Kenny of Minneapolis, "The Technic of the Kenny Treatment of Acute Poliomyelitis."

* * *

Dr. Albert J. Chesley of Minneapolis, secretary and executive officer of the Minnesota State Board of Health, has been reelected secretary and treasurer of the State, Territorial and Provincial Health Authorities of North America for his eighteenth term. The association met recently in Washington.

* * *

Dr. H. G. Rice of Moorhead, president of the Clay-Becker Medical Society and a member of the Sand Beach Sanatorium commission, has closed his office and entered military service. A lieutenant in the Navy Medical Corps, he reported for duty at the Base Hospital at Bremerton, Washington.

* * *

A recent visitor at the home of Dr. Joseph Stratte of Hallock was his son, Dr. Paul Stratte, who was recently married. The latter went from Hallock to Fort Lewis, Washington, for special training before being sent overseas with a hospital unit composed of physicians from the County Hospital of San Francisco. He is a lieutenant in the Army Medical Corps.

Dr. Stuart W. Harrington of Rochester gave the fifth annual Hedblom Memorial Lecture at the University of Illinois College of Medicine, April 29. His subject was "Diagnosis and Surgical Treatment of Intrathoracic Tumors." The lecture was sponsored by Iota Chapter of Phi Beta Pi fraternity.

* * *

Several Minnesota men were guests of the Chicago Dermatological Society in Chicago, April 15. They included Dr. L. A. Brunsting of Rochester, Dr. Francis W. Lynch and Dr. John F. Madden of Saint Paul, and Dr. Henry E. Michelson, Dr. Louie H. Winer and Dr. Carl W. Laymon of Minneapolis.

* * *

Dr. William A. O'Brien, director of postgraduate education at the University of Minnesota Medical School, gave the banquet address at the annual meeting of the Iowa Public Health Association in Des Moines, April 13. He spoke on "Recent Advances in Public Health."

* * *

Dr. Glenn H. Leemhuis, physician at McGregor for the past several years, opened offices in Aitkin last month. He will move his family there.

Dr. John F. Kelly, who expects to be called into active duty with the Medical Corps soon, concluded his medical practice in Aitkin April 1 and returned to his home in Richmond. He had practiced in Aitkin since June 15, 1941.

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Dr. Frank E. Burch of Saint Paul discussed two papers, "Cataracts" and "Glaucoma" at the meeting of the Florida Society of Ophthalmology and Otolaryngology in Hollywood, Florida, April 13-15, held in conjunction with the annual session of the Florida Medical Association.

* * *

Dr. Elexious T. Bell, head of the department of pathology at the University of Minnesota Medical School, will present three lectures at the meeting of the Texas State Medical Society in Houston, May 11-14.

Dr. Bell delivered a graduate lecture under the auspices of the Polk County Medical Society in Des Moines, March 18. His subject was "Kidney Disease."

* * *

Participating in a series of regional war conferences sponsored by the American College of Surgeons is Dr. Harold S. Diehl of Minneapolis, dean of medical sciences at the University of Minnesota. He spoke last month at meetings in Portland, Oregon; San Francisco and Los Angeles as representative of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians of the Office of Defense, Health and Welfare Services, of which he is a member.

* * *

Dr. Earl J. Black has opened offices for the practice of internal medicine at 1253 Lowry Medical Arts Building, Saint Paul, in association with Dr. Everett K. Geer. Dr. Black was a resident in medicine and assistant superintendent at the Ancker Hospital for a number of years. He will continue his association with the hospital in a part-time capacity as head of the outpatient department of the tuberculosis sanitarium at Ancker.

* * *

From the United States General Hospital Unit No. 26, now at Fort Sill, Oklahoma, for a training period comes news of two weddings.

Dr. Robert Hebbel, major, and head of the unit's laboratory service, married Miss Beulah Agre, technician at the University of Minnesota Hospitals, February 27, at Fort Sill.

Dr. Stanley W. Lundblad, Minneapolis, and Miss Alice Lindquist were married February 26 at Fort Sill. Dr. Lundblad is a captain in the Medical Service.

* * *

When the California State Medical Association meet in Del Monte, May 4, 5 and 6, Dr. Wallace Cole of Saint Paul will present three papers. He will discuss the Kenny technique for treatment of infantile paralysis fractures, and also war wounds.

Dr. Cole discussed the Kenny technique at two meetings in the East recently. He addressed the Westchester County Medical Society at White Plains, New York, March 17, and Group I of the American Academy of Pediatrics in Philadelphia, April 3.

* * *

A continuation course in obstetrical problems will be presented for physicians May 14, 15 and 16 at the University of Minnesota Center for Continuation Study. The course is under the auspices of the University Medical School, the Minnesota State Department of Health and the Minnesota State Medical Association.

OF GENERAL INTEREST

A course in maternity and new-born nursing was presented for nurses at the Center, April 30-May 2, under the sponsorship of the Minnesota State Department of Health, the Minnesota Nurses Association, and the University Medical School.

* * *

Several University of Minnesota men participated in symposia at the American Physiological Society meeting in Boston, April 1-3. Dr. Maurice B. Visscher, head of the division of general physiology, discussed gastric secretions when he contributed to a symposium on "Mechanism of Secretion." Dr. George O. Burr, director of the division of physiological chemistry, discussed the significance of the essential fatty acids in another symposium; and Dr. Wallace D. Armstrong, also of that division, discussed the development of bones and teeth in a symposium on nutrition.

* * *

The Dakota County Medical Society met with officers of the Minnesota State Medical Association, Friday, April 10, in Saint Paul.

Officers elected at the meeting are: Dr. L. S. Burns, South Saint Paul, president; Dr. A. J. Edmond, Farmington, vice president; Dr. A. H. Field, Farmington, secretary-treasurer; Dr. L. D. Peck, Hastings, delegate; Dr. J. A. Sanford, Farmington, alternate.

* * *

Dr. Wesley W. Spink, associate professor of medicine in the Medical School, University of Minnesota, was

elected to full fellowship in the American College of Physicians during its recent meetings in Saint Paul. Ordinarily full fellowship is granted only to doctors who have hitherto been associates of the college. Successful pioneering work in the use of new drugs, especially the sulphha compounds, led to Dr. Spink's election, it was announced.

* * *

Dr. Cecil J. Watson, director of the division of internal medicine at the University of Minnesota Medical School, will present several papers at the annual meeting of the Illinois State Medical Association in Springfield, May 19-21.

Dr. Watson also read a paper before the Association of American Physicians which met in Atlantic City, May 5-6. While in Atlantic City he attended sessions of the American Society for Clinical Investigation, as did Dr. Wesley W. Spink, also of the division of internal medicine.

* * *

The annual Medical Six O'clock banquet was staged Thursday, April 30, in the ballroom of Coffman Memorial Union on the University of Minnesota campus.

Sponsored by Incus, an organization of representatives of the student body, the dinner was for the entire medical school—faculty, students, alumni and their families. It is the only social function of the year at which the entire school gets together.

Toastmaster was Dr. William A. O'Brien, director of postgraduate education. Speakers included Dr. Law-



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rence R. Boies, Dr. Raymond Bieter, Dr. Wesley W. Spink, Dr. Winford P. Larson and Dr. Gordon R. Kamman.

Lester MacLean, Saint Paul, secretary-treasurer of Incus, was in charge of arrangements for the dinner.

* * *

Minnesota people who participated in the Second American Congress on Obstetrics and Gynecology at St. Louis, Missouri, April 6-10, included: Dr. A. L. Dippel, University Hospitals, who participated in demonstrations: Dr. Jennings C. Litzenberg of Minneapolis, who was chairman of a sectional meeting on Post-Graduate Education and Maternity Hospital Management; Dr. Robert D. Mussey, of Rochester, who conducted a round table discussion; Dr. Alex E. Brown, Dr. Stuart W. Harrington and Dr. Lawrence M. Randall of Rochester, and Miss Frances Hoffert, R.N., teaching supervisor in obstetrics at Minneapolis General Hospital, who presented papers.

Others who attended included: Dr. Viktor O. Wilson, Miss Adelia Egggestine and Miss Ethel McClure of the Division of Child Hygiene, Minnesota State Department of Health.

* * *

In the East to attend several pediatric meetings are five members of the University of Minnesota pediatrics department: Dr. Irvine McQuarrie, Dr. Arild E. Hansen, Dr. Albert V. Stoesser, Dr. Marguerite Booth and Dr. John A. Anderson.

On April 29, they attended the Society for Pediatrics Research which met at Skytop, Pennsylvania, Dr. Anderson presenting a paper on "Human Diabetes Insipidus," and Drs. Booth and Stoesser, a paper on bronchial asthma in children.

At the American Pediatrics Society meeting, also in Skytop, April 30 to May 2, Dr. Hansen gave a paper on the "Relations of Lipids to Eczema" and Dr. McQuarrie one on "Electrolyte Disturbances of Tumors of the Adrenal Cortex."

On May 4, the group was in Atlantic City for the meeting of the American Society for Clinical Investigation. Here Dr. Hansen addressed the meeting on "Relations of Fat Metabolism to the Nutrition of the Skin."

Dr. Hansen and Dr. McQuarrie will also attend the annual session of the American Academy of Pediatrics, May 13-15, in Cleveland. The latter will take part in a symposium on allergy, discussing "Metabolic Aspects of Allergic Disorders," and will also help to conduct special examinations for certification by the American Board of Pediatrics.

Hospital News

Wesley Sherman of Minneapolis is the new business manager of the Itasca Hospital in Grand Rapids. Mr. Sherman received his training at the University of Oklahoma, and his practical experience at the University Hospitals in Minneapolis under Ray Amberg.

* * *

Officers of the Glencoe Municipal Hospital in Glenocoe were reelected at the recent annual meeting. J. H. Holmes is president; William J. Harpel, vice president; Cedric Linville, secretary-treasurer.

Dr. H. H. Holm is head of the hospital staff; Dr. W. R. Schmidt, vice president; Dr. H. C. Goss, secretary-treasurer. Dr. A. R. Neumaier is a member of the staff.

Applications from the following physicians for staff membership were accepted: Dr. M. J. McMahon of Green Isle, Dr. Alvin M. Jensen of Brownston, Dr. J. D. Selmo and Dr. E. J. Eklund of Norwood, Dr. T. P. Martin of Arlington and Dr. T. J. Trutna of Silver Lake.

Miss Clara Draxton, hospital superintendent, reported on the purchases of equipment for the hospital.

* * *

Several members of the staff of the United States General Hospital Unit No. 26 whose orders were delayed have joined the unit in Fort Sill, Oklahoma. They include: Dr. Randall S. Derifield, captain, Medical Service; Dr. John D. Galloway, captain, Surgical Service; Dr. Paul Kabler, captain, Laboratory Service; Dr. Oscar Lipschultz, major, Dr. Jack Chalek, captain, and Dr. Eugene Ahern, first lieutenant, of the X-ray Service.

Continuation Course in Internal Medicine

Minnesota men who were registrants for the Continuation Course in Internal Medicine given April 6-18 at the University of Minnesota Center for Continuation Study were: Dr. Stanley T. Kucera, Lonsdale; Dr. Arnold Larson, Detroit Lakes; and Dr. Royal V. Sherman, Red Wing.

Guest members of the faculty included: Dr. Theodore L. Althausen, associate professor of medicine at the University of California Medical School; Dr. Alvin F. Coburn, assistant professor of medicine at Columbia University College of Physicians and Surgeons, New York City; Dr. Willis H. Fowler, associate professor of medicine, State University of Iowa, College of Medicine, Iowa City; Dr. Philip Levine, bacteriologist and serologist, Newark Beth Israel Hospital, Newark, New Jersey; Dr. Thomas T. Mackie, clinical assistant professor of medicine, Columbia University College of Physicians and Surgeons, New York City, and Dr. William S. Middleton and Dr. Elmer L. Seeringhaus, professors of medicine, University of Wisconsin Medical School, Madison.

Special events during the course included: the Hennepin County Medical Society lecture, April 6, at which Dr. Middleton spoke on "Some Rationalized Therapeutic Experiences"; the Minnesota Pathological Society annual lecture, April 7, given by Dr. Coburn on the subject, "Role of Hemolytic Streptococcus in Pathogenesis of Rheumatic Fever"; the Dight Institute lecture, April 10, at which Dr. Philip Levine spoke on "Serological Differentiation of Human Blood, Theoretical and Practical Considerations"; the Franklin R. Wright Memorial Lecture, April 14, at which Dr. Charles Huggins of the University of Chicago spoke on "Endocrine Relationships of Prostatic Carcinoma" and the George Chase Christian Lecture on "Recent Trends in Cancer Research" by Dr. H. B. Anderson, principal biologist, National Cancer Institute, April 15.



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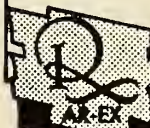
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In Memoriam

Hallward Martin Blegen

Dr. Hallward Martin Blegen of Warren, Minnesota, died March 26, 1942 at the University Hospital, Minneapolis, at the age of fifty-six.

Dr. Blegen was born in Rochester, Minnesota, August 7, 1885. He graduated from Augsburg Seminary, Minneapolis, in 1904 and received his medical degree from the University of Minnesota medical school in 1909. After serving as interne at the Minneapolis General Hospital, he was city physician for Minneapolis from 1910 to 1912, and since 1916 had practiced in Warren.

Dr. Blegen had been president of the Warren Board of Education for the past twenty years. He also had been coroner of Marshall County, surgeon for the Great Northern and Soo Line Railroads, chief of staff of the Warren Hospital and a past president of the Red River Valley Medical Society.

Besides his wife, Clara, Dr. Blegen is survived by a daughter, Mrs. Bernard Gimmetad, Minneapolis; a son, Dr. H. M. Blegen, Jr. of Missoula, Montana; two sisters, Martha Blegen of Minneapolis and Anne H. Blegen, professor of French at Saint Olaf College in Northfield; and three brothers, Professor Carl V. Blegen of the University of Cincinnati; Theodore C. Blegen, dean of the graduate school of the University of Minnesota and John E. Blegen of Minneapolis.

Arthur Burns

Word has been received of the death of Dr. Arthur Burns on April 8, 1941. He was formerly a Fellow in Medicine in the Mayo Foundation.

Dr. Burns was born in Cuero, Texas, in 1896. He received the degree of M.D. in 1923 from Johns Hopkins University, and was an intern at the Bay View Hospital in Baltimore from July 1, 1923, to July 1, 1924. He was a Fellow in Medicine in the Mayo Foundation from July 1, 1924, to October 1, 1926, when he left to practice medicine at the Burns Hospital in Cuero.

He was a member of the American Medical Association, the Alumni Association of the Mayo Foundation, Phi Delta Theta and Phi Chi.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

NEUROANATOMY. Fred A. Mettler, A.M., M.D., Ph.D. Professor of Anatomy, University of Georgia School of Medicine, Augusta, Georgia. 476 pages. Illus. Price, \$7.50. Cloth. St. Louis: C. V. Mosby Co., 1942.

In the Preface the author states that to the medical student it is impossible to form clear conceptions of microscopic neuroanatomy until he has a firm grasp of the gross aspects of the neural system. Part I, to which 164 pages are devoted, concerns "Gross Aspects of the Neural System." The text of the remaining pages, Part II, deals with "Microscopic Anatomy of the Neural System." The book contains 337 illustrations, 30 in color; these should prove very serviceable. There is a fifty-three page list of selected references, in addition to an author and subject index. The book deserves a favorable reception.

BUY WAR BONDS

(Continued from Page 377)

these may be purchased by associations and corporations as well as individuals. The F Bonds are twelve-year bonds which provide a return equivalent to an annual interest rate of 2.53 per cent. The smallest costs \$18.50 and pays \$25 in twelve years; the largest costs \$7,400 and pays \$10,000 at maturity. Bonds of Series G are sold at par in denominations from \$100 to \$10,000, and these bonds pay interests at the rate of 2.5 per cent throughout their twelve-year maturity period.

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MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

(Continued from Page 380)

Board of Medical Examiners, that he had performed a previous criminal abortion on the same girl in December, 1941, for which he was paid \$50.00. He also admitted that he had performed at least seven or eight other criminal abortions during 1941, and had performed others prior to that time.

The defendant graduated from the Des Moines Still College of Osteopathy in 1913. He was licensed in Minnesota in the same year, and has practiced at Hutchinson for the past thirteen years. Prior to that time he practiced at Redwood Falls and Madelia. From 1937 to 1941 the defendant was also Judge of the Municipal Court at Hutchinson. The case has been referred to the State Board of Osteopathic Examiners for such action as they may decide to take in reference to a revocation of the defendant's osteopathic license.

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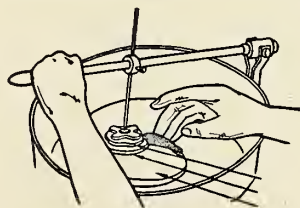
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St. Luke's Hospital (Hamline Univ., St. Paul), Duluth	A. H. Wells, M.D.	2 yrs. coll.	2 yrs.	July	8	Br. fee†	B.S.
Minneapolis General Hospital, Minneapolis	F. C. Andrus, M.D.	Coll. grad.	12 mos.	Every 20 days	18	None	None
Swedish Hospital, Minneapolis	C. R. Drake, M.D.	2 yrs. coll.	24 mos.	Aug. & Oct.	5	\$125 yr.	Cert. or Dip.
University of Minnesota, Minneapolis	G. T. Evans, M.D.	H.S. grad.	4 yrs.	Quarterly	53	Univ. fees	B.S.
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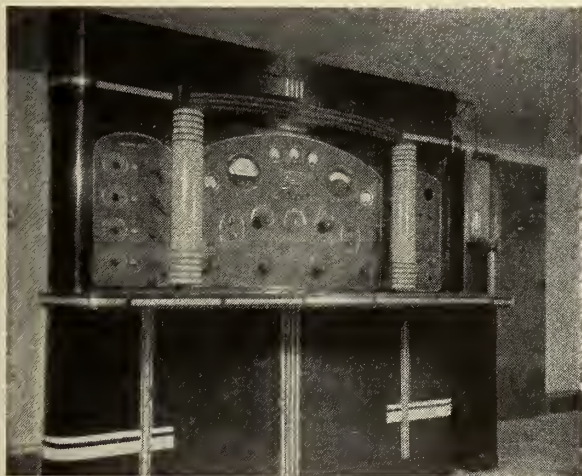
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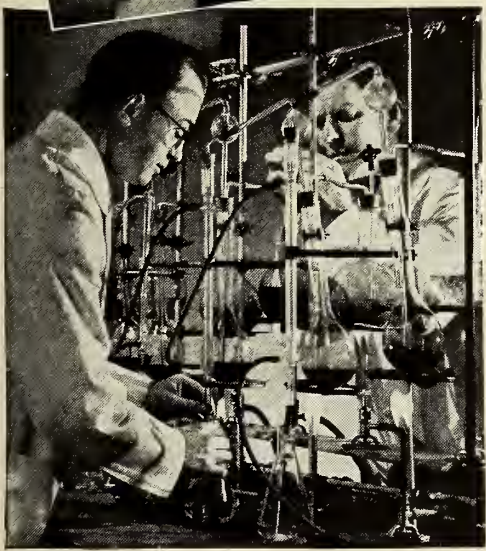
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1. Levin, E. A. & Keddie, Frances: *J.A.M.A.* 118:368, 1942

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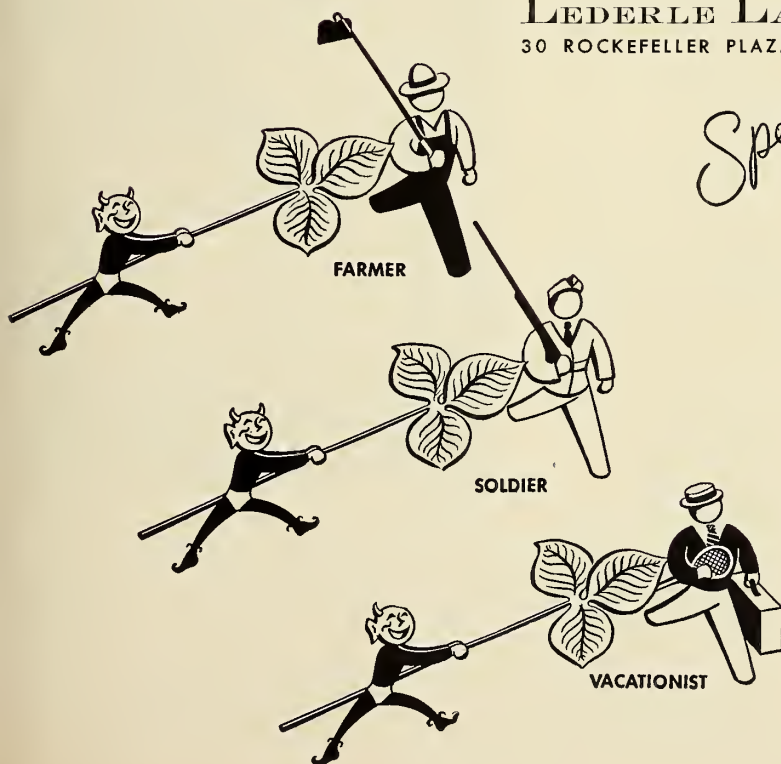
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Clinical observations of Strauss and McDonald lead to the conclusion that the condition is a dietary deficiency disorder similar to beriberi, caused by lack of vitamin B₁. They report recovery in their cases receiving this therapy, including dried brewers' yeast.

Hyperemesis as Cause of Avitaminosis

Wechsler observes that all cases of polyneuritis of pregnancy recorded in the literature were preceded by long periods of severe vomiting. "It would seem," he adds, "that because of actual starvation these patients suffered from avitaminosis and consequent neuritis," a view likewise held by Hirst, Luikart, and Gustafson. Plass and Mengert observe that the practice of giving high carbohydrate feedings for hyperemesis gravidarum is still more likely to cause avitaminosis.

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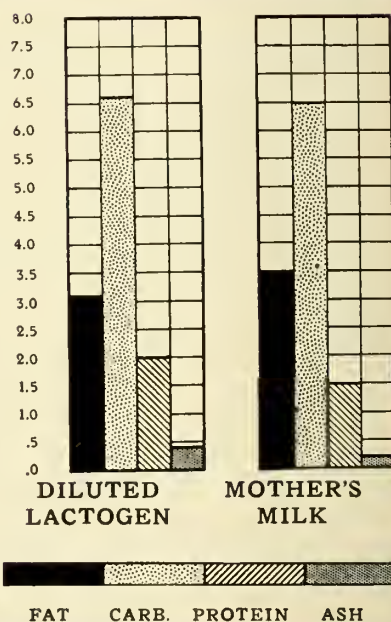
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Clinical Pediatrics, p. 156.*



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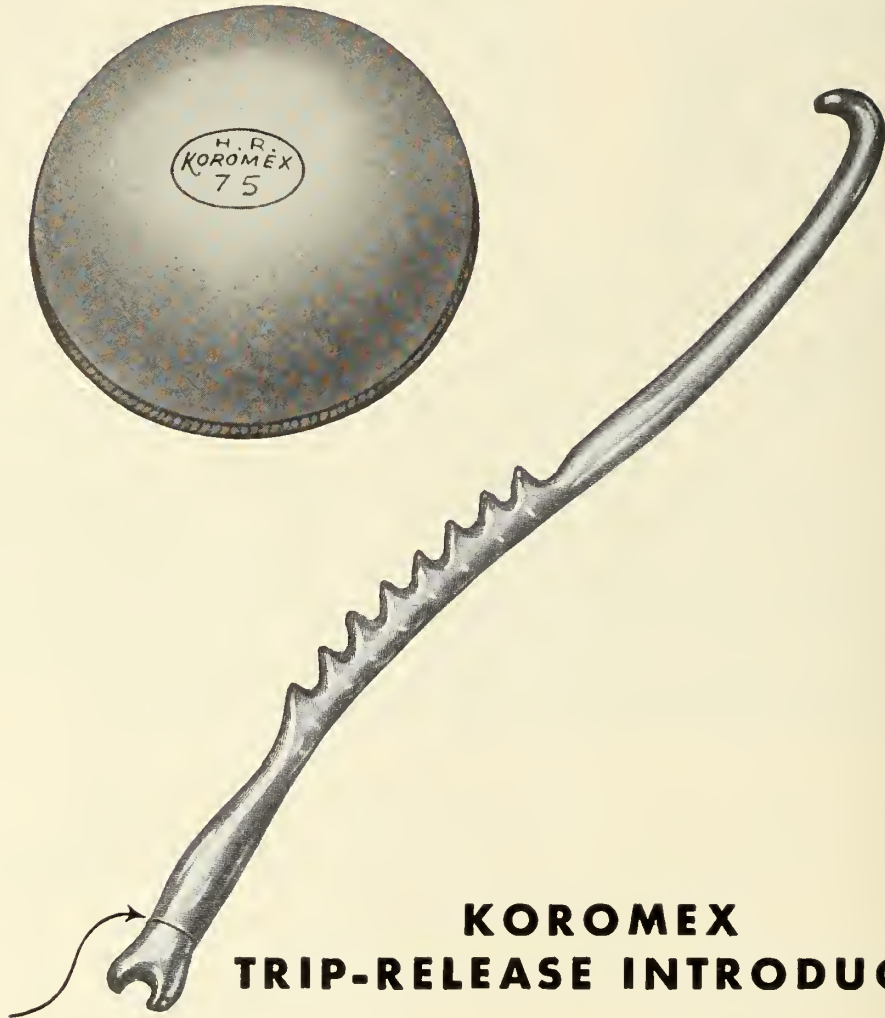
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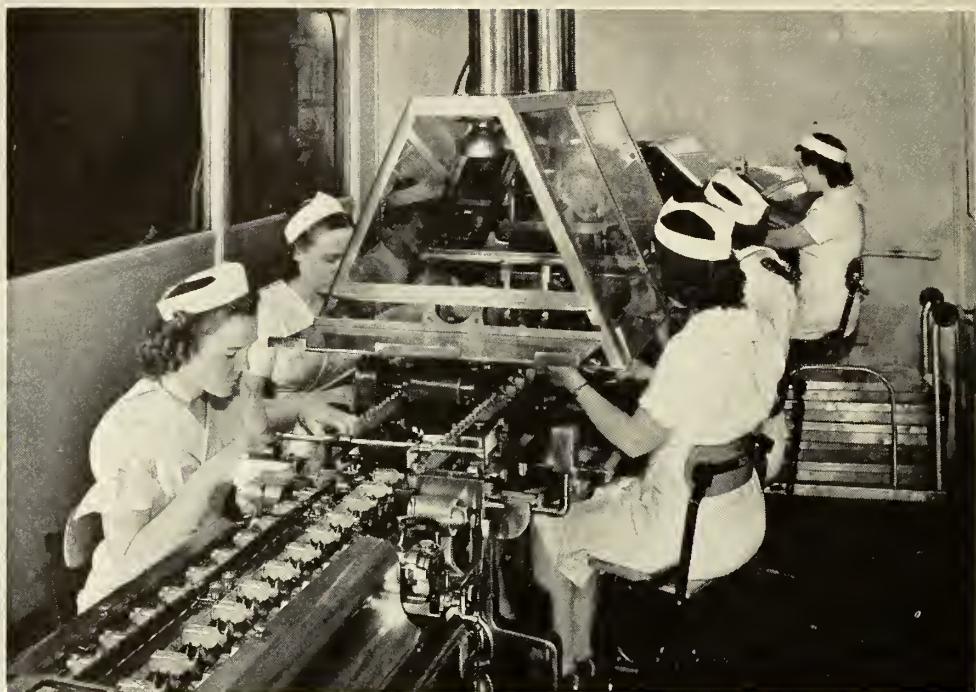
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- (1) 1939. The Canned Food Reference Manual, American Can Company, New York.
 - 1938. Commercial Fruit and Vegetable Products, Second Edition, W. V. Cruess, McGraw-Hill, New York.
 - 1937. Appertizing or the Art of Canning; Its History and Development, A. W. Bitting, Trade Press-room, San Francisco.
 - 1936. A Complete Course in Canning, Sixth Edition, Press of "The Canning Trade," Baltimore.



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MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 25

June, 1942

No. 6

HEALTH AND SAFETY OF WAR-TIME WORKERS

LEVERETT D. BRISTOL, M.D., DR. P. H., HEALTH DIRECTOR

American Telephone and Telegraph Company
New York, New York

PROMOTING the health and safety of war-time industrial workers, who produce the materials and carry on the civilian services for the men behind the guns, is of vital concern to the organized medical profession, as well as to all other citizens of the United States. It is my purpose to present this subject under the following five headings: (1) Employee Relations; (2) Management Relations; (3) Medical Relations; (4) Public Health Relations; and (5) Educational Relations. The first two connote the demand or need for industrial health services, the last three—the supply of such services.

Employee Relations

Man power is now the greatest need both of industrial production and of military success. Adequate man power is dependent on the highest type of mental and physical fitness. The speed-up of production, the development of modern material and methods, the increased employment of new workers will require new industrial health and safety routines and regulations, more intensive study of occupational diseases and industrial poisons, and the extension and improvement of all health and safety education. Our present needs require a strengthening and broadening of the entire industrial health and safety program all along the line from private industry to local, state and federal jurisdictions. As emphasized by Surgeon General Parran of the United States Public Health Service, "Industrial hygiene must keep pace with the needs arising from high speed assembly lines, which will employ some fifteen million men and women within the year. Great

Britain learned that it is urgently necessary to have the full-time services of a trained industrial physician in every large plant. Less than one-seventh of our workers have that service now." As a further indication of the need for promoting more adequate health and safety services for wartime workers, is the fact that in 1941, according to the United States Public Health Service, there was a 12 per cent increase in disabling cases of sickness and non-industrial injuries among male employes of various industries as compared with the mean for the last ten years.

An adequate industrial health program should be a strong arm in winning the war, particularly in the preservation of expert workers and assisting in the development of additional skilled workers. Reducing lost time due to occupational and non-occupational illness and accidents, and cutting down excessive exposure to injurious materials are parts of the program which will be conducive to maximum national effectiveness and production. It is particularly necessary that studies be made to determine unfavorable environmental factors in the production and use of war equipment and munitions. Industrial health should involve, primarily, a program of health conservation, emergency care and disease and accident prevention among employees. Industrial medicine, surgery, engineering, toxicology, nursing, record keeping, plant hygiene, sanitary inspection and health and safety education are the chief means for carrying out a program. Too often these have been considered as ends in themselves.

Our active war efforts already are being reflected in rapidly increased industrial activity and

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production in many centers. Added number of workers in a plant, without a corresponding increase in working space, may easily create serious conditions of overcrowding and thus suddenly augment potential industrial sickness and accident hazards. Failure to appreciate the need for a possible change in methods and procedures in the handling of new or increased amounts of chemicals and other substances, may result in serious injury to the health and bodies of workers. Moreover, wartime industrial health problems do not exist in the plant alone; attention must be given also to the home and housing conditions of workers, as well as to their nutrition, recreation and morale or mental health. In various areas and communities, some of which have sprung up "over night," the increasing influx of workers gives the subjects of adequate housing and nutrition particular importance in the war program. In this connection, where possible and feasible, it is suggested that in those industries which do not, during peacetimes, ordinarily provide lunchrooms or cafeterias for the workers, special plant canteens might be set up, under the direction of expert nutritionists, to make available nourishing, energy-building foods as required.

Management Relations

One of the most significant recent developments in relation to business management's organized interest in the health of the worker was the creation of an Advisory Health Committee of the Insurance Department of the Chamber of Commerce of the United States, which held its first meeting in March, 1942. This Committee will consider the possible development of an industrial health program to be carried on by the Chamber in coöperation with affiliated trade associations. It represents a broadening of the health work of the Chamber, which for many years has promoted more adequate city and rural health administration through annual Inter-Chamber Health Conservation contests. The National Association of Manufacturers also has a Committee on Healthful Working Conditions.

In management's organization of personnel for industrial health service, it is assumed that (1) the larger the company, the more specialization and full-time service is possible; and that (2) the smaller the company, the more generalization

is required and the greater is the necessity for the unification of positions and functions, and the need for assistance in industrial health work from part-time private practitioners of medicine and local health departments or associations. The development of a practical program for health supervision of employes of smaller plants and business concerns probably is the greatest unmet need in the whole realm of our wartime industrial health efforts. This should involve, primarily, such activities as (a) employe health and safety control; (b) office and plant hygiene control; (c) health and safety education and (d) an adequate system of records. For smaller business concerns, which employ approximately 85 per cent of all the workers, much of the health and medical services ultimately must be made available either (a) by groups of these smaller concerns working together through some joint plant of centralization—as, for example, those in one building or trade group or in a restricted locality—on the basis of pooling of costs for medical, nursing, and other assistance required; or (b) by local community agencies such as health departments, university institutes of industrial hygiene, or organized local medical societies or groups of physicians.

A wide range of practice exists in larger industries so far as management's organization of medical work is concerned. A majority of these industries have medical units of their own, some of which are highly organized with medical and nursing staffs and all of the modern equipment required. In these units the following services usually are available:

1. First Aid in sickness and accidents.
2. Advice on medical or surgical problems.
3. Attention to ailments of short duration and of a character not requiring absence from work.
4. Laboratory and other examinations in coöperation with employe's physician.
5. Routine physical examinations for employment or placement, or in cases of suspected disease.
6. Periodic health examinations, particularly for those in hazardous occupations.
7. Advice on plant sanitation and hygiene.
8. Preparation of health literature.
9. Coöperative services with Benefit or Sickness Insurance Committees and Compensation Boards.

Most of the larger companies provide nursing services in connection with their medical activities. In fact, industrial nursing is becoming one of the important components of industrial health.

Noteworthy progress also is being made to provide part-time nursing service for small industries by local visiting nursing associations and other groups.

While management as a rule has an abiding interest in the personal health and well-being of each individual worker, the great problems which the manufacturing or business executive must face are those more impersonal mass extravagances of lost time, decreased efficiency and mounting costs—the triple offspring of industrial sickness and accidents. One of the leading management representatives states that absenteeism loss in the United States, or in an individual plant, may be approximated in dollars and cents by multiplying the number of workers by seventy dollars per year. Winning the war requires among other things that these losses be prevented or controlled so far as possible!

Medical Relations

The science and art of industrial health, like the worker whose mental and physical fitness it serves to protect and promote, have evolved through periods of infancy, childhood, and adolescence into vigorous adult life. It may be of interest to emphasize the changing characteristics of organized industrial health promotion through these four periods and to note the relationship of the practitioner of medicine to this development.

Development Periods of Industrial Health

1. *Infancy—Traumatic Surgery.*—A little over twenty-five years ago, interest in the health of workers in various industries of the United States was aroused, particularly by the need for surgical care or treatment of industrial accidental injuries and in the newer compensation cases associated therewith. Traumatic surgery rapidly developed as a specialty, and the company surgeon became the first central figure in the field of early industrial medicine.

2. *Childhood—Accident Prevention.* — The next stage in the development of industrial health as we know it today was that of accident prevention. The key person of this period has been the safety engineer. However, there are important medical aspects of accident control, and the practicing physician working in the industrial

field has much he may contribute to the solution of this problem of accident prevention.

3. *Adolescence—Occupational Disease Control.*—The third stage in our well-rounded development of industrial health in this country has been associated with many significant discoveries in relation to occupational diseases and in the establishment of procedures for their control. The general practitioner of medicine has long had knowledge of the diagnosis and treatment of these conditions, but he has had to depend to a considerable extent on the chemist, the toxicologist, the laboratory expert, the engineer, or the industrial hygienist for much of the recent progress in prevention and the hygiene of the industrial working environment.

4. *Adult Life—Positive Health Promotion and Sickness Prevention.*—While these four periods in the development of organized industrial health work are not mutually exclusive, the present stage of industrial health activities involves positive health promotion and education and sickness and accident prevention on a broad scale. Attention must be given not only to occupational injuries and diseases but also to the prevention and control of non-occupational sickness and accidents, with special reference to the common diseases of the upper respiratory tract, tuberculosis, syphilis, heart disease, diabetes, appendicitis, and arthritis, as well as so-called off-duty accidents in the home and on the public highway. In this complete development of the modern industrial health program the practitioner of medicine will have an increasingly important part to play.

The Physician in Industry

Industrial physicians may be classified into three groups based on the amount of time given to work, viz.: (a) those on full time, (b) those on part time, and (c) those on call for special emergency services.

The full-time industrial physician usually is a member of the company medical department staff on a salaried basis, with special training and experience in industrial medicine. He must assume duties not only as a consulting physician or surgeon but also more or less as the health officer of the company, applying all of the known

principles of preventive medicine and industrial hygiene to the employe group. Part-time physicians give shorter or longer periods of time to services in one or more company plants. They usually are paid a stated sum per week, month, or year by the company in question according to the amount of time given. In general, their activities are associated with physical examinations, case work, and special problems having to do with compensation and other medicolegal matters. Physicians on call serve only on special request. They and the part-time plant physicians are the usual community practitioners and specialists. Up to the present time most of the smaller industrial plants are served by these general practitioners, and industry is making more and more use of such medical knowledge and service. In no sense should the so-called industrial physician be a competitor of the general practitioner in the community. All members of the medical profession, including the general practitioners, the full-time and part-time industrial physicians, and the public health officers, should work together for the benefit of all concerned and for the better promotion of industrial health.

Without attempting to go into detail as to the functions or duties of the general practitioner in relation to industrial health, it may be stated that his chief obligations and opportunities are as follows:

1. To promote industrial health as an important function in the larger field of public health.
2. To maintain joint responsibilities to employers, employes, and official government agencies concerned with industrial health.
3. To recognize and report occupational diseases and all other diseases required by law to be reported.
4. To encourage management and labor to see the value of industrial health conservation.
5. To educate and advise employed persons regarding their health.
6. To make preemployment or preplacement and other physical examinations that may be required and to assist in the follow-up of cases needing correction of impairments.
7. To guide employed individuals to adequate medical, surgical, or specialized treatment facilities where necessary.
8. To assist in matters pertaining to general sanitation of the plant and to have knowledge of the potentially toxic materials or disease-producing processes used in any organization that he may serve.
9. To have a general knowledge of employe and industrial relations and of personnel practices and facilities.

10. To be versed in the handling of traumatic surgical emergencies and in workmen's compensation laws.

11. To work in harmonious and ethical relations with fellow practitioners and industrial physicians.

The most essential requirement for the success of a program in the interest of war-time workers is a sympathetic coöperation between the private practitioners of medicine and surgery, the lay and medical leaders of industry and the various government agencies. It may be stated without much fear of contradiction that the general practitioner of medicine, whether he is giving a small amount of time directly to industrial work or serving industry indirectly as the private physician to employed persons, is potentially the most important unit in industrial health work. On him, at present, largely rests the success or failure of such work, particularly for the smaller industries. While much may be said in favor of the thesis that industrial health service is not a medical monopoly, it must be admitted that it would be more difficult to carry on successful industrial health work without the physician than without the other specialists who make up the so-called industrial health profession.

Industrial Health and the Medical Society

In conformity with the recent trend in several states, it is respectfully suggested that all state medical societies should create standing committees on industrial health and plan the scope of their activities in coöperation with the Council on Industrial Health of the American Medical Association. Moreover, in those counties made up of large industrial populations, the establishment of committees on industrial health in county medical societies should be encouraged. It is here that most of the important industrial health problems and services must be worked out in coöperation with local community agencies, public and private. It is of interest to note that the Minnesota State Medical Association has a Committee on Industrial Hygiene and Occupational Diseases; and the Hennepin County Medical Society, a Committee on Industrial Health. It thus would appear that the medical profession in Minnesota is all set to take its part in the development of a well-rounded industrial health program.

The Council on Industrial Health of the

American Medical Association, created in 1937, has developed a guide to committees on industrial health in state medical societies, which includes the following suggested objectives:

1. To train industry and labor to the value of industrial health conservation.
2. To develop a clear understanding of the proper scope and functions of industrial medicine and to clarify relationships between private and industrial practice.
3. To keep the medical profession informed about all accepted methods for reducing the frequency and severity of industrially induced disability.
4. To elevate medical relations under workmen's compensation.
5. To scrutinize all legislation affecting the health of industrial workers.
6. To improve relationships between medicine and insurance.
7. To establish working relationships with all agencies in the state interested in industrial health.
8. To arrange for the adoption of similar activities through coöperating committees in the medical societies of industrial counties.

To accomplish these objectives it has been recommended by the Council on Industrial Health that the personnel of committees include representation from:

1. Private practice.
2. Industrial medical practice.
3. Medical representation, if such exists, from each of the following:
 - (a) State bureau of industrial hygiene.
 - (b) State workmen's compensation agency.
 - (c) University medical faculties in the state.
 - (d) Industrial insurance companies.

Public Health Relations

Prior to 1936 there were in the United States only five state departments of health and two or three state departments of labor conducting industrial hygiene activities, and even these activities were of limited nature. As of 1942, a total of thirty-six state, four city, two county and two territorial Industrial Hygiene Bureaus have been established, mostly in departments of health. Some of these are of recent creation and have only skeleton organizations. There is great need that these be strengthened as rapidly as possible as a part of our wartime industrial health program. Moreover, additional industrial hygiene units should be organized without delay in the remaining states, territories and local governments, particularly of the larger industrial cities. Many of these recent advances in public

industrial hygiene activities have been due to the leadership of the Division of Industrial Hygiene of the United States Public Health Service, through fundamental research and its application; education; advice on organization; special preparation and loan of personnel and equipment; and technical consultation services.

Somewhat typical of the services rendered by a State Division of Industrial Hygiene are the following, now made available by this Division of the Minnesota State Department of Health:

1. To receive and investigate reports of occupational disease.
2. To promote more adequate medical services within industry, such as the employment of full-time or part-time physicians and nurses, the provision of properly equipped first aid rooms, and the maintenance of sickness records.
3. To encourage the use of ethical preemployment and periodic physical examinations and, as a part of these examinations, the use of the routine serologic test for syphilis.
4. To confer with industrial physicians in regard to special problems or general industrial health programs.
5. To provide on request engineering personnel specially trained and equipped to make studies of plant environment, such as air analysis for toxic vapors, gases, and dust, to determine whether the working atmosphere is safe or otherwise and to make recommendations for the control of health hazards found.
6. To promote adult hygiene programs within industrial groups, such as the control of tuberculosis, syphilis, and other communicable or preventable diseases.
7. To prepare and disseminate information on various toxic materials and processes, and methods for their control.

As noted previously, it is particularly to be hoped that our present war program will result in more active coöperation between industrial medical departments, private practitioners of medicine and local and state Bureaus of Industrial Hygiene. One concrete achievement of such coöordinated efforts might be a much needed national plan for standardized recording and reporting of industrial morbidity and mortality. Moreover, it would be of advantage to all concerned if a plan were developed in each state whereby the plant physician is invited to accompany the official of the state or local Bureau of Industrial Hygiene in his inspection of working conditions in the plant.

Educational Relations

One of the chief unmet needs in connection with the national war emergency, calls not only for more and better undergraduate instruction on industrial health in our medical schools, but also for the organization of short postgraduate courses in strategic training centers throughout the United States. One result of the marked advance in the development of Bureaus of Industrial Hygiene in state and local governments has been an increased demand for trained personnel which it has been difficult to meet. Many war-production industries also are finding it difficult to obtain the services of properly qualified medical personnel.

In a survey which I made in 1934, it was found that only thirteen out of eighty-five medical and public health schools in the United States and Canada gave separate courses on industrial hygiene or industrial medicine. Several medical schools included one or two lectures on this subject in their general course on preventive medicine and public health, while a majority of such schools gave no attention whatever to this important and growing subject. Thus, a wide range of practice in the teaching of industrial health exists at present among the various medical and public health schools. It is natural and reasonable to suppose that those schools associated with universities in the more populous urban and industrial centers will have more demand on the part of students and more adequate facilities for instruction on industrial health than will those located in rural and agricultural parts of the country; the further development of teaching and research on this subject in various institutions naturally must depend largely on such local conditions and requirements.

For those students who expect to become private practitioners of medicine and surgery but who eventually may give part time to industrial health work, it would seem desirable to furnish instruction in medical schools, preferably during the latter part of the course. For those students who expect to take up general public health work on a full-time basis or to specialize in industrial health service, separate courses should be available in graduate schools or schools of public health. For those students or lay business executives who wish to specialize or receive instruction in business or personnel administration, courses on industrial health adapted to the use

of such students should be included in the curricula of university schools of business administration.

Field visits to industrial plants for inspections and surveys should be to the teaching of industrial medicine what hospital ward rounds are to the teaching of clinical medicine. Medical and public health schools which give instruction on this subject should cultivate the friendly co-operation of local industries in order to enhance their facilities for field training of students and research on industrial health.

Where possible, instruction on industrial health, including industrial medicine, industrial sanitation, industrial safety, industrial toxicology and other subjects, should be organized under one separate, independent department with a full-time professor, as coördinator and director, and with the necessary assistants. The head of the department should be a physician with training and experience in industrial health. In the larger universities he might also serve as the director or teacher of courses on this subject not only in the medical school, but also in public health, nursing, business or graduate schools. Detailed subject matter and methods of teaching industrial health must be based on local conditions, facilities and needs. Industrial health, including industrial medicine, will become what physicians and medical educators help the businessman and industrial worker to make it. In this connection, opportunities and responsibilities of educational institutions are unlimited.

Recent Educational Advances

While much remains to be done, some advances have been made in the teaching of industrial health during the past few years. A review made by the Council on Industrial Health of the American Medical Association in 1938 found that fifty-two medical schools reporting, averaged five hours of instruction on industrial health in their four-year curricula. A more recent study shows a further slight increase in the number of hours devoted to this subject. It is hoped that added impetus will be given by (a) the teaching syllabus prepared by the Council on Industrial Health, which has been authorized by the Council on Medical Education and Hospitals of the American Medical Association to take the initiative in such matters, and (b) the recently developed outline on the Teaching of Industrial Health, prepared jointly

by the Council and a Committee of the American Association of Industrial Physicians and Surgeons.

A few medical schools also recently have established short courses on industrial health. These have been organized either independently by the medical schools or in coöperation with local industries, the State Bureau of Industrial Health and other public agencies. One of the outstanding examples of postgraduate education on industrial health is that which was carried on last year through brief regional institutes in several Iowa communities, based on coöperative efforts between the State and County Medical Societies and the State Department of Health.

As of interest in the field of educational relations, was the creation in 1941 of a joint committee made up of representatives of (a) the American Association of Industrial Physicians and Surgeons and (b) the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association to consider and possibly to draw up a plan for certifying industrial practitioners. Based on regulations governing the organization of certifying boards already laid down by the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Board for Medical Specialties, it is hoped that eventually an American Board for Industrial Practice may be created and become operative.

Conclusions

In conclusion, the health and safety of war-time workers and of all workers during the important period of post-war adjustment will depend on the united efforts of (1) the workers themselves, individually and collectively; (2) industrial management and related local, state and national commerce, trade and manufacturers' groups; (3) the medical profession and allied professions of nursing and dentistry; (4) the public health and public safety professions, including official and voluntary administrators, engineers and laboratory specialists; and (5) the educational leaders of the United States.

A few of the fundamental objectives in a co-ordinated local wartime program might be:

1. To stimulate, as rapidly as possible, the evaluation of important hazards to health and safety, particularly in local war-production industries, and to make specific and practical recommendations to the managements for the elimination of any hazards encountered. This is not merely an academic suggestion, for plants holding government contracts must assure the federal government of working conditions "not hazardous or unsanitary, or dangerous to health and safety."
2. To develop community-wide interpretation and local medical education on industrial health.
3. To make provision for at least a minimum medical service in industries having government contracts. Such a service might include (a) physical examinations, (b) a well-organized system of referral for the correction of physical defects to be worked out with the coöperation of the local medical profession and community hospitals, and (c) an adequate system of records and reports.
4. To inaugurate specific contacts with local managements and workers, and to assist in providing medical, nursing, engineering, and laboratory personnel where needed.

In order to implement such a local wartime industrial health program, it is suggested that a joint coördinating committee be set up to include one representative from each of the following groups: (1) employes; (2) organized labor; (3) industrial management; (4) Chamber of Commerce or Manufacturers' Association; (5) County Medical Society; (6) Local Dental Society; (7) Local Nursing Association; (8) Local Health Department; (9) Local Safety Council; and (10) Local Educational Institution. Additional funds or personnel which might be required should be sought from available local, state and federal sources.

Quoting the Federal Security Administrator, "of all health and welfare services, industrial hygiene can make—*must* make—the most direct contribution to winning the war. As in modern warfare, the strategy of industrial health service is teamwork." The State of Minnesota and Hennepin County are to be congratulated on the medical, public health and industrial leadership which they have available to promote active teamwork for the health and safety of war-time workers!

LEGAL ASPECTS OF FIRST AID BY LAY PEOPLE

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IN first aid work, as in medical work otherwise, there is an ever present possibility of encountering legal difficulties. It is estimated that 15,000,000 people will receive first aid training during 1942. Many of these people are assuming posts in Civilian Defense, and are expected to perform first aid in the case of a catastrophe. The possibility of encountering legal difficulties seems to loom as important to them. They wonder about the obligations their positions entail and the risks they assume. Inasmuch as physicians often teach these classes and will in a catastrophe have lay first aiders as assistants, the questions are often directed at them.

The questions most commonly asked by them are considered here. Answers given pertain to first aid in Minnesota, and should not be regarded as necessarily applicable in other states. These answers are not official, but are compiled from sources regarded as highly reliable. These answers are not intended to cover any problems beyond those of strict first aid requirements.

Q. In the case of an accident, is a bystander required by law to render first aid?

This question, so often asked, cannot be accurately answered by a simple statement. There is no Minnesota law at present which specifically requires a casual bystander to render assistance in the case of an accident. But laws have been passed and court decisions have been made which do throw responsibility upon certain people, by virtue of their positions, or because of the circumstances, to render assistance. It is difficult to predict, for many of the hypothetical cases advanced by first aid class members, whether a court might hold that a bystander has a responsibility to help the injured. Let us consider some of the situations wherein there appears to be a responsibility.

A legally qualified physician or nurse employed to render medical or nursing service should under specified or implied terms of a contract render first aid.

A school teacher should, according to various

decisions, care reasonably for a stricken child under the teacher's supervision. She is "acting in the place of the parent." The teacher is not only justified in acting to protect the safety of those entrusted to her care, but she also has responsibilities in acting prudently and reasonably to safeguard these children. The teacher is not only the representative of the parent in the schoolroom, but the courts have also recognized that the teacher has certain jurisdiction over the streets and adjacent property while the child is on the way to or from the school. Though requiring teachers to care "reasonably," the courts have not up to this time demanded that teachers in the mass take formal courses in first aid. It is difficult to state what a jury would regard as reasonable care in any specific case where the teacher is not required to study first aid; but surely she should not let a stricken child lie unattended. No case of this kind appears to have arisen in Minnesota, but it is probable that Minnesota teachers should care reasonably for stricken children.

Inasmuch as bus drivers for Minnesota schools are required to study first aid and to carry some equipment, a jury would probably hold that they likewise must render first aid to children under their control.

The driver of a car which participates in an accident is required to assist injured persons. This is true even though the driver was not responsible for the injury or accident.

What, then, of the obligation of a Civilian Defense worker, trained in first aid? There is at present no specific legislation pertaining to his responsibilities. Nevertheless, it appears dangerous for him to assume that he would not be held, in a test case, to have responsibilities for rendering assistance.

It is anticipated that specific legislation will be passed defining the rights, obligations and duties of all the Civilian Defense workers. Perhaps legislation under the present emergency will throw far more responsibility upon all of us to assist the injured in a catastrophe. New conditions re-

quire new rules, and the law is not unchanging. Certain it is that any person should not be hesitant in doing his best to help the injured. The law and all people look with favor upon those who do humanitarian acts.

Q. Suppose a bystander at the scene of an accident renders assistance. Can he be held liable for injury suffered due to incorrect care given?

A. If the first aider uses reasonable care and judgment, he would not be liable for any injury or damage. But if he performed his acts negligently, he could be held to respond in damages.

What degree of care must he exercise in order not to be negligent? He would probably be required to exercise such care as a reasonably prudent person should exercise, considering all the circumstances such as the injury itself, the entire situation of the emergency, the training of the first aider, etc. It is probable that a jury might expect a higher standard of care from a trained first aider than from an untrained person. It is probable that a physician, giving first aid only and as a volunteer, and though not intending to charge for his services would be held to the same degree of care as if he were treating his own patient. Under ordinary circumstances a doctor is bound to exercise such care, skill, and diligence as is usually exercised by physicians and surgeons in good standing of the same school of practice.

Q. If a person in rendering first aid initiates action resulting in expenses for care, can he under any circumstances be held responsible for the expense payment if the injured person refuses to pay?

A. Yes, the first aider might under certain circumstances be held to have contracted for such service as that of medical or hospital care or ambulance service. Even though the victim gives the first aider permission to undertake procedures involving expense, the latter should explain in advance when ordering service for the victim that he is acting only as a volunteer, and is not otherwise related to nor interested in the party concerned.

Q. Must an accident victim be left lying immediately at the accident scene until authorities such as the police or a coroner have arrived?

A. When the victim is living, the first aider

may at once give him such attention as reasonably seems indicated for the preservation of life or limb. He should of course attempt to gain a clear picture of the whole accident scene and history.

If the victim is dead, the body should not, strictly speaking, be moved. Neither should the possessions on or about the body be moved. When strict adherence to the letter of the law is violated because of the dictates of common sense, the authorities seem to accept the removal as justifiable. Thus it may seem sensible to move a body a few feet from a highway carrying heavy traffic or from a crowded theater-lobby. When a crime is suspected, one should be especially reluctant to move the body.

Q. What is the law pertaining to notification of police authorities in the case of an accident?

A. In all cases in which a crime is suspected, the sheriff or some other police officer should be promptly informed of the facts.

The 1938 Supplement to Mason's Minnesota Statutes of 1927 states: "The driver of a vehicle involved in an accident resulting in injury to or death of any person shall . . . by the quickest means of communication give notice of such accident to the local police department if such accident occurs within a municipality; otherwise he shall in like manner give notice to the office of the sheriff of the county." And further: "The driver of a vehicle involved in an accident resulting in injury to or death of any person or total property damage to an apparent extent of \$50.00 or more shall, within 24 hours, forward a written report of such accident to the commissioner." Special report forms are available usually from local police officers. Accident reports to the highway commissioner should be on report forms, if they are available. It is wise for all to study a blank form in order that they may gather the necessary information should they be involved in an accident.

When a driver collides with and damages an unattended vehicle, he is required to locate and notify the owner or to report the accident to a police officer. If he damages fixtures which are legally on or adjacent to a highway, he is required to take reasonable steps to notify the owner or person who is in charge of the property. A driver involved in a traffic accident is required, in general, to give his name, address, vehicle registration number, and show his driver's li-

cense if requested by the driver of the other vehicle or the owner of damaged property.

Physicians are required to report all cases in which gunshot wounds are treated. Garages and repair shops are required to report to local police and the highway commissioner when incoming motor vehicles give evidence of having been struck by a bullet. Coroners are required to report to the highway commissioner all cases of death resulting from motor vehicle accident.

Q. Under what circumstances should the coroner be notified?

A. The coroner is concerned in certain cases of death. Section 957-2 of Mason's Minnesota Statutes of 1927 provides: "It shall be unlawful for any person other than the coroner to issue a certificate of death in any of the following cases to wit: violent or mysterious death including suspected homicides." Section 946 provides: "Coroners shall hold inquests upon the dead bodies of such persons only as are supposed to have come to their death by violence, and not when the death is believed to have been and was evidently occasioned by casualty." Thus the coroner is allowed some discretion in deciding when inquest shall be held. Coroners appear to interpret the rule above as indicating inquest shall be held if a crime is suspected, but not if the death is accidental, without suspicion of crime. In some localities in the state, local legislation clarifies their duty regarding inquest.

The Attorney General has ruled that in the case of accidental death by drowning, where no crime or violence is suspected: "It is probably best to have a coroner sign death certificate, and in absence of coroner, a private physician called upon finding dead body, could not make a certificate because he was not in attendance at time of death."

The Hennepin County coroner accordingly lists for cases subject to his attention (1) mysterious deaths, (2) accidental deaths, (3) suicides, (4) homicides, and cases where the latter three are suspected. The coroner signs the death certificates in these cases. When doubt exists concerning whether the coroner should be called, he may usually be telephoned and given opportunity to decide whether he should come to the scene of the sudden death. The first aider should be aware that in cases of sudden death it may be necessary to notify the coroner, but ordinarily

decision to call him may be made by others who may be at hand—police, physician. It is difficult even for a physician to decide sometimes, for after all, under what circumstances is a death mysterious or accidental?

Q. Suppose a seriously injured victim refuses an offer of assistance extended by a first aider. Shall assistance be given anyhow?

A. The problem has many aspects. A person, even though mentally competent, may refuse to allow a first aider to splint a fracture. A refusal by a competent person should be respected; otherwise serious legal difficulties may be encountered. It is unlikely that a victim will refuse help if emergency measures for life-saving are necessary, unless the case is that of a would-be suicide. It is legally proper to thwart attempts at suicide.

The difficulty may arise especially with children, disoriented aged, or drunken people. Children may refuse tendered offers of assistance because they fear pain. Judicious handling of the case ordinarily will solve the problem here. If, despite all efforts, the child still refuses an offer to help, in the absence of responsible relatives, the first aider will probably be upheld if he carries out emergency, life-saving measures. He should use caution as indicated for the cases of the disoriented.

Where cases involving first aid for the disoriented are brought into court, the matter becomes a question of fact. The cases may include the drunken, the aged disoriented, the concussion victim, others suffering from a psychosis. Society looks with favor upon those who attempt to relieve suffering and save life. In case of the bombing of a building, when prudence dictates that the building should be evacuated, it may appear necessary to remove such people even against their desires. Jurors would doubtless be very considerate in such cases. No more restraint nor any more treatment should be attempted than is fully justifiable as emergency action. Ordinances will probably be passed defining rights of Civilian Defense workers in this matter. The first aider who exercises due restraint and confines himself to emergency life-saving and limb-conserving measures in the case of a disoriented person who refuses an offer to help will probably not be penalized by a jury. Such court action is unlikely to occur, of course,

and tactful handling of the situation at the accident scene will lessen minimal possibilities of encountering legal difficulties here.

Experience indicates that in addition to questions above considered, students often ask questions pertaining to traffic regulations. It is surprising how few people know the simplest of the traffic regulations, such as those pertaining to parking and to right-of-way. Studies at the University of Minnesota show that less than one per cent of the students tested know what the Minnesota Traffic Code says concerning signaling in traffic. A copy of the Code may be obtained from the State Highway Department. First Aid

classes of course devote attention to accident prevention. Information concerning and stimulation to study the traffic rules has a place in these classes. The informed student has better personal protection. He is better able to get a clear picture of the accident scene when he knows the regulations.

Particular acknowledgment is made for many helpful suggestions from A. J. Lobb, LL.B., of The Mayo Clinic.

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THE PREVENTION OF AUTOMOBILE ACCIDENTS

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WE ARE living in the age of preventive medicine. The basic philosophy which underlies more and more of our medical practice of today is that it is far better to prevent a disease than to attempt to treat it after it has occurred. Naturally, this is not always possible, but whenever it can be done it is definitely the duty of the physician to resort to all possible measures to prevent the occurrence and spread of disease and to protect and save human life under all circumstances.

A Neglected Medical Problem

But let us look into the situation in regard to automobile accidents. After an accident has occurred it is the responsibility of the physician to do what he can for the injured person. This is often pitifully little. The number of maimed and crippled minds and bodies seen daily by physicians in this country as the result of automobile accidents is enormous. The death toll of approximately 40,000 lives in 1941 from automobile accidents in the United States is equivalent to the total loss to the country of the entire population of a small city of men, women and children in one year, and certainly far exceeds the mortality from most diseases. Up to the present, however, the physician has concerned

himself very little with the preventive phase of the traffic problem. It may be asked, "Why not leave this to the police?" in whose hands this problem has rested for many years. The answer is that in spite of all the police can do, traffic accidents continue to account for thousands of valuable lives each year and to cause crippling and maiming of many more thousands of persons. Since physicians are entrusted with the responsibility of caring for the patient after the accident, it seems logical that they should have some part in the prevention of these accidents. It must be remembered that physicians are almost the only group remaining in the world today whose sole interest is the saving and protecting of human life.

A Serious Traffic Problem

An impartial review of the traffic problem in this country demonstrates the fact that *something is seriously wrong with the system of traffic control* and it is not difficult to point out what the deficiency is: *we lack a national unified method of traffic control*. Because of this fact evils have multiplied, until today there is no hope of controlling this great problem without the passage of uniform national traffic laws and regulations, effectively enforced. Such measures will make it necessary that periodic medical examination of drivers, compulsory examination of automobiles

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TABLE I. COMPARISON OF REGULATION OF AVIATION AND AUTOMOBILE TRAFFIC

<i>Aviation</i>	<i>Automobile</i>
1. Uniform national system of laws	Variable local system of laws
2. Enforcement of laws by competent, well-trained national officers	Enforcement of laws by variably trained local officers
3. Careful compulsory periodic medical examination of pilots	No medical examination for drivers' license in most states
4. Careful ground school study, including traffic laws of the air, with compulsory examination for licensure	Traffic schools in relatively few localities with inadequate examination for licensure
5. At least 35 hours of flight training both dual and solo with flight test required for licensure	Usually no driving school or driving test necessary for licensure
6. Compulsory licensure of all aircraft after careful periodic examination	Totally inadequate examination of automobiles, variably enforced
7. Strict enforcement of laws prohibiting flying while pilot is intoxicated	Lax enforcement of laws prohibiting driving while driver is intoxicated
8. Careful planning for future development of air traffic by Civil Aeronautics Board	Lack of any centralized authority for effective future planning
9. No local interference with law enforcement	Much local interference with law enforcement

and trucks, compulsory instruction in traffic laws and in driving, and impartial enforcement of the law by well-trained officers, be carried out.

The Lessons of Air Traffic Regulation

Fortunately, we can turn to aviation for a demonstration of how a national system of traffic regulation can be established. Few people in this country realize what an excellent system of traffic control has been set up for aviation in the United States. Air traffic was not always so well-controlled as it is now. In the barnstorming era, not so many years ago, air traffic was as chaotic as is ground traffic today. Great credit is due the Civil Aeronautics Authority for its excellent work in bringing into being the best system of air traffic control in the world. In the United States so much wisdom has been incorporated into traffic laws of the air that it seems worthwhile to compare them with the condition obtaining in traffic control on the ground (Table I).

Uniform System of Laws.—The greatest advantage which air traffic enjoys is that of a uniform national system of laws embodied in the

Civil Air Regulations.* With minor exceptions, flying is done in the same manner in all parts of this country. In certain areas local conditions require minor modifications of these laws, but as little modification as possible is done. Automobile traffic, on the other hand, suffers from the fatal handicap of being regulated by variable local laws. It is necessary for a driver to travel only a short distance before he reaches an area in which the traffic laws may be very different from those of his own region. The placement of traffic lights, to provide a concrete example, varies markedly from one locality to the next. Consequently, it is easy for the motorist to become confused and to break laws which he never knew existed. In some localities absurd and even ridiculous traffic laws, proper enforcement of which is impossible, are in existence. Too much cannot be said against the dangerous practice of attempting to enforce variable local traffic laws, many of which are unwisely conceived. The advantages of a national system of traffic regulation should be evident to everyone. Enough experience has been gained by studies of traffic to permit institution of a wise system of national laws which could regulate traffic most satisfactorily, with minor local variations as necessary.

Careful Medical Examinations.—To secure any type of license to pilot an airplane, the applicant must pass a careful medical examination designed to demonstrate his physical fitness for handling a high speed machine safely, and this examination must be repeated every six months or every year, depending on the type of license the pilot holds. On the other hand, in most states the person who wishes to obtain a driver's license is not required to undergo a medical examination of any kind, and every physician sees patients who have serious physical handicaps, such as poor vision, epileptiform convulsions, loss of limbs or other serious defects, but who nevertheless drive constantly and frequently are involved in accidents. The question of whether such handicapped persons, who obviously are unfit to operate a motor vehicle, can be allowed to continue to drive automobiles and to endanger population is a most serious one. It is very definitely the duty of the physician to take measures

*Civil Air Regulations, Government Printing Office, Washington, D. C.

to end this danger by demanding the compulsory periodic physical examination of all applicants for drivers' licenses and to insist that this be made a national law, affecting all drivers in the United States.

Enforcement and Personnel.—Traffic laws of the air are enforced by competent, nationally trained officers; that is, by officials of the Civil Aeronautics Board. These men are universally respected and their decisions are so fair and honest that they are rarely protested. They have contributed immeasurably to the increasing safety of aviation and to the saving of human lives. On the other hand, enforcement of traffic laws in automobile traffic is carried out by variously trained local officers. In certain regions, such as large cities, they may be very well-trained indeed. In other areas, however, they often receive no training whatever. At best they are entrusted with the enforcement of many types of laws in addition to traffic laws, and an unnecessary burden is sometimes put upon them by the necessity of attempting to enforce absurd or even harmful local regulations. It is not my intention to disparage the excellent work of traffic control officials in certain parts of this country, where their devotion to duty has resulted in the saving of many human lives. It is simply desired to point out that their efficiency could be increased if one, unified control with a national system of laws were operative.

Technical Qualifications Demanded.—In aviation, careful study of the traffic laws of the air, together with some knowledge of aerodynamics, meteorology and maintenance of airplanes as disclosed by a compulsory written examination, is necessary for licensure of a pilot. In respect to ground traffic, however, schools at which prospective drivers are taught traffic rules exist in relatively few communities and in most places a driver's license can be obtained after a totally inadequate examination. In many states, the payment of a fee is all that is required for the obtaining of a license to drive an automobile, and ignorance of traffic laws is so dangerously widespread in all states that much education will be required before this situation is improved. Yet the necessity for thorough knowledge of traffic laws is very great, since in automobile traffic, as in air traffic, the human error usually is responsi-

ble for accidents rather than structural failure of the vehicle. It cannot be expected that the loss of life from automobile accidents will be reduced unless the driver is required to know thoroughly the traffic laws that he is expected to follow.

To obtain a private airplane pilot's license it is necessary that the students present proof that dual flying (that is, flying with an instructor), together with at least thirty-five hours of solo flight has been carried out. In most courses of instruction, the number of hours of flying with an instructor usually averages about twenty, and a rather difficult flight test (which frequently is failed), conducted by an inspector of the Civil Aeronautics Board, is required for licensure. To obtain a commercial or a transport pilot's license much more experience is required in order to pass the difficult test. In ground traffic, on the other hand, no driving school or driving test usually is necessary for licensure. In a few communities, a driving test is required before a license to drive an automobile can be obtained. Simple observation in any part of this country will convince anyone of the fact that the lack of knowledge of how to drive an automobile properly is widespread. Dangerous methods of driving are so common as to require almost no special mention. Most people do not drive badly because they maliciously disregard laws, but because no one ever taught them how to drive properly. Again, the need is so obvious that no further comment need be made.

Licensure and Inspection of Vehicles.—In aviation traffic compulsory licensure of all aircraft, after careful periodic examination, is required. It is now against the law to fly an unlicensed airplane in any part of this country. Such examination, conducted by inspectors of the Civil Aeronautics Board, has saved countless lives. Structural defects not infrequently are encountered and must be corrected before flying can be done. Experience in aviation has shown that the pilot cannot be trusted to take proper care of his airplane, and consequently, federal inspection was wisely provided for and required. In automobile traffic, on the other hand, there is totally inadequate examination of automobiles, and provisions for such examinations are variably enforced. In most localities there is no inspection whatever. In certain localities periodic inspection of brakes is made, and in certain others various parts of the

vehicle are inspected. Again, the need for a uniform national law requiring strict periodic inspection is evident. There are upon the roads of the United States a large number of automobiles which are totally unfit for driving, and represent dangers to human life.

Personal Restrictions; Evasion of Punishment.

—In air traffic there is strict enforcement of the law prohibiting flying while the pilot is intoxicated with alcohol or with some drug. There are laws prohibiting driving an automobile while the driver is intoxicated, but it is common knowledge that these laws frequently are disregarded and that they are enforced with laxity. It has been well stated that a drunken driver is literally "dynamite on wheels." The effect of even a comparatively small concentration of alcohol in the blood stream is markedly to impair the judgment and efficiency of the driver, and this fact is well established. Could drunken driving be eliminated, the accident rate would immediately decrease sharply. Again it is true that in certain localities strict enforcement of these laws is the rule, but in many localities extremely lax enforcement is common. In aviation there is no local interference with law enforcement, such as so frequently occurs in automobile traffic. The evil of "fixing automobile traffic tickets" unfortunately is widespread. It is common knowledge that federal laws cannot be "fixed," whereas local laws are affected by this evil. Good laws are of no avail if the traffic officer is prohibited from doing his duty by the "fixing" of a traffic ticket.

Planning for the Future.—Finally, the Civil Aeronautics Authority acts as a national agency to plan for the future development of aviation and to regulate air traffic. The high standard which has been reached by civil aviation in the United States is due directly to the wisdom with which this body has performed its function and to the wise leadership of the Honorable Robert Hinckley, assistant secretary of commerce for air. In automobile traffic, on the other hand, there is a lack of any centralized authority for regulation and future planning, and this lack has resulted in many evils. As one example of what may be accomplished in automobile traffic by such a body, I may point out the vital necessity in this country for more two-lane roads, with a small island in the center, to prevent the hazard of head-on collisions which unfortunately are so

TABLE II. RECOMMENDED MEASURES FOR REDUCTION OF AUTOMOBILE ACCIDENTS

1. Uniform national system of traffic laws.
2. Enforcement of laws by competent well-trained officers.
3. Compulsory yearly medical examination for licensure.
4. Traffic school study with examination in traffic laws for licensure.
5. Driving instruction with driving test for licensure.
6. Compulsory periodic examination of all motor vehicles.
7. Strict enforcement of laws prohibiting driving while driver is intoxicated, with severe penalties obligatory.
8. Creation of post of assistant secretary of commerce for ground motor traffic, with a Civil Automobile Authority to plan and direct future development.

common on present highways. Such highways have been built in a few localities, but it is extremely important that many more be established. These roads also would be of great military importance. Close coöperation should obtain between the Civil Aeronautics Board and the group in control of automobile traffic, so that landing strips will be placed along highways and so that certain areas of main highways will run in the direction of the prevailing winds at stated intervals, as has been the case in Germany for several years. A centralized Civil Automobile Authority could carry out many other important measures to aid not only in the saving of lives but also in national defense. An assistant secretary of commerce for automobile traffic, which is certainly of equal importance to air traffic, should be at the head of such a program. In Table II will be found certain recommendations for the improvement of ground traffic control in the United States.

Comment and Conclusions

We cannot do better than to follow the lead which aviation has so well set. Better traffic control is imperative and is the only method by which the number of automobile accidents can be reduced. Appeals to sentiment will reach only those persons who in most cases are already exercising due caution in driving. They will not reach those who are responsible for most accidents. Experience has shown that appeals to sentiment cannot be relied on to save human

lives. *There is no substitute for wise regulation and efficient law enforcement.* It need not be feared that liberty would be lost by this method and it cannot be denied that many lives would be saved thereby. The difficulty of establishing a national system of laws is very great, but the difficulty need not deter us. In a time of national emergency, when every life is valuable to our country it is the responsibility of physicians to take the steps necessary to secure those measures which will result in diminishing the enormous death rate from automobile accidents. We no

longer can afford to be careless of the lives of our citizens. The recommendation by medical societies and other organizations of some such national system of laws, as has been mentioned herein, would carry great weight and this is the only method by which this can be accomplished. It is our duty then as physicians to demand that a national system of laws be quickly framed and adopted, in order that the lives of thousands of our fellow citizens may be safeguarded, and that mutilation and death from avoidable automobile accidents be eliminated.

MECHANISM OF UVEITIS

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DURING the past quarter of a century the etiology and method of development of inflammations of the uveal tract have interested many observers and our understanding of the nature of uveitis has been greatly enlarged. It is less than thirty years since Billings emphasized the importance of focal infections in eye diseases. The following year, 1913, the section on Ophthalmology of the International Medical Congress in London discussed the "Pathogenesis of Chronic Uveitis, Excluding Syphilitic, Tuberculous and Sympathetic Cases." De Schweinitz at that time gave it as his opinion that every case of uveitis is of septic or toxic origin. There was an awakened interest in the subject and among others, Rosenow, in 1915,¹⁰ and Irons and Brown, in 1916,⁸ reported valuable experimental work on streptococcal infections. Benedict¹ with Rosenow² and some of his co-workers contributed valuable experimental and clinical evidence. Alan Woods¹⁷ and his associates have done a tremendous amount of work on all phases of the problem.

It is interesting to note that in the older textbooks, syphilis is given as the major cause of uveal inflammations. In Vienna and some of the other German schools, it has been taught for some time that the predominant cause is tuberculosis. In our own country and in England, focal infection has been accepted as the underlying cause of most cases. Older theories of auto-intoxi-

cation, menstrual disturbances *per se*, and some other toxemias, except as they affect the general health and resistance, have been pretty generally discarded.

The causation of some forms of uveitis is so relatively evident that it is not necessary to discuss it in detail. We refer first to injuries in which infection is carried into the eye from without, excepting the development of sympathetic ophthalmia, which we will discuss later. Also there are those patent cases of septic choroiditis, endophthalmitis occurring with a general septicemia, or with severe systemic infection occasionally seen in acute exanthematous diseases. Lastly, we have those cases in which there is a patent tubercle in the choroid or iris, or a syphilitic nodule, both of which quite evidently come from deposit of the infecting organism carried in the blood.

In an earlier paper⁷ we tried to convince ourselves that there were some distinguishing characteristics of iritis caused by various etiological factors. The more cases that one sees, the more one is convinced that clinically it is difficult, if not impossible, to differentiate. We are speaking now of the general run of acute and/or recurrent cases of uveitis. There is a marked similarity clinically in cases where the etiological factors may be widely divergent. This naturally brings up the question of how infection with syphilis, tuberculosis, gonorrhea or from such isolated foci

¹Presidential address delivered before the Minnesota Academy of Ophthalmology and Otolaryngology, October 10, 1941.

as peri-dental tissues, tonsils, prostate, cervix, etc., or other remote factors cause this picture.

Duke-Elder⁵ says:

... Inflammatory lesion in the eye could be excited in one of three ways.

1. By direct organismal infection, the micro-organism being liberated into the bloodstream and finding lodgment in the eye.

2. By systemic intoxication, the toxins derived from micro-organisms (either exotoxins, liberated by bacteria, or endotoxins released by autolysis of dead micro-organisms) finding their way to the eye by the bloodstream.

3. An allergic sensitization may occur, due to the liberation of foreign protein at the site of infection, the proteins in question being derived from the invading organism itself or elaborated in the reaction between it and the infected tissues.

That there is actual invasion of the uveal tissues by infecting organisms carried in the blood, we may not doubt. The experimental work already spoken of and much more of which nothing may be said here, has proven this conclusively. There are, however, many times as many people who have infections in whom no uveitis develops, as there are those who have it. Rosenow¹¹ spent much time in the study of selective action of bacteria for certain tissues. This elective localization was shown to be true in the case of experimental animals, using infective material from patients in whom iritis was present. It seemed that both culturally and experimentally the organisms tended to grow in media or in tissues where the oxygen tension was similar to that in the case from which the organisms were derived. Many bacteriologists and pathologists have failed to agree with Rosenow on his theory. The fact remains that organisms were recovered from experimental animals with iritis and the process repeated from animal to animal.

In addition to bacterial invasion viruses in herpes, both simplex and zoster, apparently can produce uveal inflammation. A specially virulent form of uveitis, Harada's disease, presumably is caused by a virus. In 1937⁶ Jonas Friedenwald reported a severe case of bilateral uveitis, retinitis, and optic neuritis in a young woman in whom careful study did not reveal any of the usual etiological factors. Subsequent animal inoculation of spinal fluid from the patient revealed a filter passing agent which produced lesions in the eyes of rabbits, dogs and cats, which were similar to those of the original case. Mice seemed to be re-

sistant to the infection and rats and guinea pigs showed relatively minor reactions. This is only one case, but knowing the caliber of the observer, and noting the extremely complete study of the case and the thoroughness of the animal experimentation, it seems only logical to conclude that in addition to micro-organisms, filterable viruses can also cause severe eye inflammations, endogenously.

With respect to Duke-Elder's second group, Alan Woods,¹⁶ following up the earlier work done by Guillery in Germany on ferment-producing bacteria, produced uveitis experimentally with products of cultures from *B. prodigiosus*. Guillery and Woods' work was done by intravenous injection. Brown³ injected intra-ocularly streptococcus toxin with resultant uveitis. Of the more recent reports Siniscal,¹³ working with material from dental foci, was not able to produce uveitis in rabbits, by introduction of the toxins from culture of this mixed bacterial group, while he could from the organisms themselves, both on intra-ocular and intravenous injection. The toxins were not introduced intra-ocularly.

Direct invasion certainly occurs in a percentage of cases of uveitis, whether it be bacteria, filterable virus or toxic products of bacteria. This undoubtedly accounts for some of the acute cases. When we consider the much larger number of patients, with infections known to produce uveitis, we may well wonder why more people do not develop trouble. Immune reactions undoubtedly account for many eyes being saved. We may well ask ourselves, however, why, except for the purulent endophthalmitis sometimes seen with overwhelming infections, we do not see more of the common run of uveal involvement in these cases?

Few eye complications develop in frank cases of pulmonary tuberculosis. They are much more often seen in healed patients, and more especially where hilus glands are about the only demonstrable evidence of infection, aside from positive skin tests. Acute iridocyclitis is seldom seen in acute specific urethritis; much more commonly in chronic urethritis or prostatitis. Experimental studies made by Swift and Derrick⁴ and by Schultz and Swift¹² have shown that the tissues of the eye could be sensitized more readily by repeated small inoculations or better yet by leaving an agar implant in the tissues, than by large injections of infecting agents.

There must be another factor which enters into the mechanism of uveitis. In the present state of our knowledge this seems to be the third factor of which Duke-Elder speaks, namely tissue sensitivity by whatever name we wish to call it. While immunity saves, her evil half-sister, allergy, destroys. There has been a great deal of experimental work, in addition to that already mentioned, which has proven that almost all tissues in the eye can be sensitized to foreign substances, from serum to bacteria of various kinds and their products. The initial reactions are seldom severe without subsequent injection, either in the eye or systemically may set up violent reaction in the tissues. An interesting and instructive case which parallels some of the experimental work was reported in 1939 by Muncaster and Allen.⁹ The patient, a teacher, aged thirty-one, was given a routine tuberculin test. There was no positive skin reaction to the initial small dose. A second larger dose gave a strongly positive reaction, as well as lighting up the first area. First the left eye, followed in a few hours by the right, developed classical symptoms of irido-cyclitis, edematous corneas, cloudy vitreous and, what was seen later, after the media cleared, round spots of grey exudate near the disc in each eye.

Another very interesting case is that of Theodore and Lewson,¹⁴ which parallels some of the experimental work done with foreign sera. The patient, a man, aged forty, developed bilateral iritis together with other classical symptoms of serum sickness, after being given four doses of type I antipneumococcus serum. There was only slight pain, moderate circumcorneal injection, but much heavy fluffy white exudate in the anterior chamber and over the posterior corneal surface. Clearing was rapid; no chorioidal foci could be seen after recovery, which was complete.

These are to me striking examples of what we have been talking about, the sensitization of uveal tissue, which may not be of great importance in respect to treatment in the present light of our knowledge, but a better understanding of the processes with which we are dealing eventually brings a better mode of attack. Incidentally, the question of sensitization of ocular tissues may become very important from a medico-legal standpoint and actually have twice in our own practice, within the past year, one a case of recurrent iritis resulting in Iris Bombé and secondary

glaucoma, and the other, parenchymatous keratitis.

One of the severest forms of uveitis, sometimes called malignant uveitis, is the type that has been designated sympathetic ophthalmia. From Elschnig's work on uveal pigment which he showed could act as an antigen and which could produce an anaphylaxis in the species from which it was derived or in a different species of animal, came his theory of an allergic basis for sympathetic ophthalmitis. Woods¹⁷ confirmed Elschnig's work, and added much more valuable information experimentally and clinically. He found a positive complement fixation test to uveal pigment in patients who had suffered injury to the uveal tract and had healed without sympathetic inflammation. This was absent in those who developed sympathetic ophthalmia or protracted inflammations. Intradermal tests were positive in the sympathetic cases and negative in normal individuals and some with other eye inflammations. Friedenwald has done more work on the pathologic phase of this condition and while the whole picture is still not quite clear, it, also, is coming clearer.

Endophthalmitis phaco-anaphylactica is the name given by Verhoeff to the severe inflammations in the eye from lens substance. These occur in some individuals where lens substance has been left in the eye at operation for cataract or in needling operations, especially the second eye. Uhlenhuth had shown that lens protein was organ specific, and Verhoeff and Lemoine¹⁵ found that these cases had a positive reaction to intradermal injection of lens antigen, another evidence of allergic reaction in the eye.

Summary

1. Uveitis is due to actual invasion of organisms as evidenced by development of tubercles in the chorioid, ciliary body and iris, syphilitic nodules, or in free pus formation in septicemia, et cetera. Filterable viruses probably also set up direct inflammation of uveal tissue.

2. There is possibly involvement by endo- or exotoxins produced by bacteria, causing direct irritation.

3. Probably most important is the production of a hypersensitivity of uveal tissue to allergens of various types, whether of virus, bacterial proteins, uveal pigment, lens substance and/or other proteins.

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NASAL SINUSITIS AND ORTHOSTATIC ALBUMINURIA IN CHILDHOOD

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ORTHOSTATIC or postural albuminuria constitutes one of the enigmas among the many that are encountered by the physician caring for children. It is my purpose to record a rather interesting feature of this disease which I have recently observed.

The outstanding feature of this condition is the appearance of albumin in the urine when the subject is standing up, the urine being albumin-free when he is lying down. This characteristic must be supported by the total lack of evidence aside from the albuminuria, suggesting kidney disease, such as elevated blood pressure, pathological microscopic elements, etc. Some observers permit the presence of a few casts and red blood cells without removing the case from this benign class.² It seems doubtful that such laxity is wise.

An attempt has been made by certain writers to give greater definition to albuminuria of this type by adding other specifications. Some think that lordosis, leading to circulatory back pressure on the kidneys, is responsible.⁴ They have considerable support for their opinion in that conditions artificially imposed to simulate lordosis while the patient is prone may result in the appearance of albumin in the urine, and in that vice versa, the assumption of a posture which eliminates lordosis while standing may result in its disappearance.³

Other investigators have successfully enlarged

upon the passive congestion theory by showing, through the medium of ureteral catheterization, that it is the left kidney from which the albumin comes, back pressure being greater on this side because of impingement upon the left renal vein by the aorta.¹ Still other writers made note of the importance of infection.⁵

Regardless of minor points, agreement seems to exist among most observers that it is benign in character, that it occurs most frequently in children and young adults, and that it tends to disappear with increasing age. At the same time it becomes very evident that the burden of proof as to the harmlessness of such albuminuria rests heavily with the physician making the diagnosis.

For many years I have been aware of the fact that there is a very close connection between infection of the nasal sinuses and disassociated albuminuria. The relationship is so intimate that experience has led me to suspect nasal sinusitis in any case showing albumin without other discoverable evidence of kidney disease. In the course of observation of a case of this type I became aware that it was only the daytime urine that contained albumin. Urines collected before getting out of bed in the morning were invariably albumin-free. This discovery led to like investigation of other cases and it soon became evident that such was the usual thing for this type of case. The following instances are typical.

Case 1.—A boy, fourteen years of age, complained of abdominal pains arising, as subsequent events showed, from an irritable colon. In the course of his examination a heavy cloud of albumin was found in his urine. Microscopic examination was negative. At his second visit, five days later, it was found that the urine passed before getting out of bed in the morning was free of albumin while that obtained at the office showed a light cloud. The relationship of this situation to nasal sinusitis was recalled, but since he had no complaints and there were no evident findings pointing toward that condition, nothing was done. A week later, early morning, day, and evening specimens were all albumin-free.

However at this time he developed a "cold" followed by obvious nasal sinusitis. The next urinary samples, examined one week later, showed the early morning sample to be albumin-free while that obtained at the office contained a heavy cloud of albumin. A large amount of muco-pus was removed from the nose by nasal suction. The next pair of urine samples was examined four days later, and both samples contained albumin in large amount. On close questioning the patient admitted that he had forgotten to obtain the morning sample until he had been up for fifteen minutes. The same thing happened once again at a later date.

Under continued treatment the nasal sinusitis cleared so that at the end of six weeks the patient seemed to have recovered. During this time early morning samples of urine remained albumin-free while those obtained at night or during his office visits contained albumin in amounts decreasing until it finally disappeared.

A week later, while the morning urine was still clear, a faint trace of albumin was found to be present in the daytime specimen. The patient said that he had had a slight "cold" during that week. Since then the patient has been well of evident nasal infection and the urines have remained free of albumin both day and night.

During the period of observation no pathological microscopic elements were ever found. The blood pressure on one occasion was 108/65. The x-ray confirmed the clinical diagnosis of nasal sinusitis, locating the pathology in the maxillary and ethmoidal sinuses.

Case 2.—A boy, twelve years of age, was brought to the office because of general disability and constant "colds." Violent infection of the nasal sinuses was found to exist. The urine contained a heavy cloud of albumin but no microscopic finding. Subsequent tests showed the urine taken before arising in the morning to be albumin-free, while that taken at night or during the day contained varying amounts.

Under treatment, evidence of nasal sinusitis gradually lessened, and the amount of albumin in daytime samples gradually diminished until both finally disappeared in about one month. On two later occasions, separated by rather long intervals, both morning and evening samples of urine were found to be albumin-free. Improvement in the boy's general condition had paralleled that of the sinus infection and at the time of the last urine examination he was reported to be well.

Case 3.—A girl, seven and a half years of age, was brought to the office because she was constantly clearing her throat. She had had two "colds" in the preceding two months. She was found to have a low grade nasal sinusitis. Her urine contained a heavy cloud of albumin with no microscopic findings. Urine taken the next morning before she had gotten out of bed was free of albumin. Ten days later another comparison of morning and evening samples revealed the morning sample was still albumin-free while that taken at the end of the day contained a heavy cloud. The comparison was repeated later, at a time when the sinus infection had apparently cleared, and both samples were free of albumin.

These examples typify my general experience. The children have not been lordotic individuals, and it would seem doubtful from the physical types represented that such a factor was basically significant. Even though it might have been, its ultimate importance must have been secondary since the albuminuria cleared without attention to posture.

A similar position must be taken in attempting to apply Rytand's observations.⁶ His subjects were apparently adults. This of itself introduces a conditioning element which might even exclude all of the cases that I have seen, since according to general opinion most individuals exhibiting real orthostatic albuminuria would have recovered spontaneously before reaching adult life. The relatively high percentage of anatomical abnormalities that presumably contributed in his cases would seem to make it clear that whatever conclusions he could have made would have to be revised and accorded at most an outside chance of important consideration in cases such as I have described.

The one finding common to all has been nasal sinusitis. As would be expected this has led to a periodic character of the albuminuria depending on the state of activity of the sinusitis. Russell was inclined to assign considerable importance to infection in relation to postural albuminuria.⁶ However, he made no mention of focal infection though he did describe many of the symptoms of nasal sinusitis in his cases. For instance, it was quite common following scarlet fever, and his patients were often sickly, and had frequent headaches, etc.

It is impossible for me to take the cheerful view regarding the prognosis that seems to be held by a majority of the observers. I have

no idea what actually causes the kidney to be permeable to proteins at these times, but I do know that in my cases the agent that accomplished that end result is associated with infection and that it therefore is probably harmful. Furthermore, I have seen too many serious kidney lesions resulting from nasal sinusitis to view without concern any albuminuria associated with that condition regardless of whether microscopic elements were present or not.

Whether other focal infection than nasal sinusitis ever stands in this same relation to orthostatic albuminuria or not I do not know. One should expect that it would be true but my experience does not allow any conclusion on that point. Also it is not my intention to imply that all orthostatic albuminuria is related to focal infection.

Summary

Attention is called to the fact that orthostatic albuminuria in children is a frequent accompaniment and apparently a result of nasal sinusitis, especially of a subacute or chronic type.

Such being the case it is contended that orthostatic albuminuria must be viewed with much more concern than has been the custom in the past.

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MEDICO-LEGAL AND SOCIOLOGIC ASPECTS OF DIABETES MELLITUS

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DURING the past few years various individuals have suggested that the diabetic patients may be controlled satisfactorily without the use of blood sugar determinations. They have advocated only the examination for urinary sugar. This concept admits of the greatest concern for the diabetic patient who has hyperglycemia. The patient who has no glycosuria, but who may be having periods of hypoglycemia has been forgotten in our enthusiasm to control glycosuria at all times. The diabetic patient who has persistent glycosuria injures chiefly himself, while the patient suffering from hypoglycemia may become a menace to other individuals. We are inclined to doubt the wisdom of any régime which does not stress the dangers of hypoglycemia as much as those of hyperglycemia.

It is well known that the level of the blood sugar at which symptoms of hypoglycemia appear varies among individuals. There is also a variation in the same individual at different times, and the level at which symptoms appear in

children is, as a rule, lower than in adults. It must be remembered the rate of fall of the blood sugar is an important factor in determining the level at which symptoms occur. This seems to be responsible for the difference in the symptoms of overdosage from regular insulin as contrasted with protamine zinc insulin. The diversity and lack of association of premonitory symptoms which occur in hypoglycemia as a result of overdosage of protamine insulin, often result in a state of chronic hypoglycemia. As a result the patient may later disclaim all knowledge of many acts which he may have done.

It is probable that every diabetic patient taking insulin sooner or later develops symptoms of hypoglycemia. If the patient learns to recognize the earliest premonitory symptoms produced from over-dosage of regular insulin, he is able to stop the reaction before it progresses further. This is not always true with protamine zinc insulin and before he realizes his condition his ability to make decisions may be lost.

We have been told, especially when using protamine zinc insulin, that headache, nausea, vomiting and vertigo are the symptoms which the pa-

These findings were accumulated from private practice and the Diabetic Clinic of the University Hospital at the University of Minnesota. This paper was presented at Minneapolis, Minnesota, May 9, 1941 before the Minnesota Society of Internal Medicine.

DIABETES MELLITUS—BEARD AND LAYNE

TABLE I

M., aged thirty-six, seen in diabetic coma, January, 1937. Blood Sugar = 540 CO₂ Tension 17 vol. %

Date	Blood Sugar	Urine Sugar	Symptoms	Insulin	Diet
3/12/37	84	A.M. 0 P.M. 2+		Prot. 40 once daily	Cho. 175 Prot. 80 Fat 110
3/19/37	9 A.M. 75 11 A.M. 100 2 P.M. 68 4 P.M. 86		Feels fine—no symptoms.	Prot. 35 once daily	Same
3/29/37	11 A.M. 217 2 P.M. 40 4:30 P.M. 36	2+ 0 0	Feels fine—a little tired.	Prot. 30 once daily	
4/21/37	9 A.M. 66 11 A.M. 173 2 P.M. 268 4 P.M. 170	0 0 3+ 3+		Prot. 30 once daily	
5/7/37	9 A.M. 100 11 A.M. 90 2 P.M. 120 4 P.M. 100		Been working hard. Very tired. No reaction but wife states pt. seems in a daze—not interested in his children, or home surroundings in evening.		
3/21/38	9 A.M. 52 11 A.M. 204 2 P.M. 112 4 P.M. 69	0 tr tr 0	Feels fine—note low morning blood sugar.	Prot. 25 Reg. 20	
10/9/40	9 A.M. 50 11 A.M. 170 2 P.M. 100 4 P.M. 40	0 0 0 0	Seen yesterday after dyspnea. Rapid pulse and mental confusion developed. Pulse rate before E.K.G. was taken thought to be 180. E.K.G. negative except for tachycardia of 120. States his greatest symptom now is nervousness and irritability.		

tient may associate with this condition. These symptoms may not always occur and the patient is unable to realize his condition before periods of disorientation, aphasia, and mental confusion develop. Therefore, the patient may continue to work automatically and it may be difficult for an observer to realize that a hypoglycemic reaction is present.

The slowness in the fall of the blood sugar is thought to be the explanation for the lack of premonitory symptoms and the cause for the suddenness of a hypoglycemia reaction as it sometimes occurs with protamine insulin. It is also well recognized that the action of protamine insulin is prolonged for more than twenty-four hours. As a result there may be a continuous state of mild hypoglycemia when the next daily injection is taken. We must note that any regulated diabetic under good control is subject to reactions because of both intrinsic and extrinsic variations beyond his control. Any number of

slight changes in his environment may occur in his daily routine, as increased muscular exercise, or a meal that has been delayed or omitted. An unusual day at the office or heavy emotional strain, excessive exercise, such as volleyball late in the afternoon, or even an unusually prolonged evening of dancing, may upset the daily slight rise or fall of the blood sugar. At times a gastrointestinal affection which impairs the absorption of food may be sufficient to provoke a hypoglycemic episode in a previously well-controlled diabetic. The presence of sugar in a fasting, a postprandial or in a twenty-four hour specimen of urine cannot be depended upon to insure against hypoglycemia, since there may occur only a transient glycosuria. Sindoni has shown that no apparent quantitative relationship exists between the blood sugar in diabetic individuals receiving, either alone or in combination, protamine zinc insulin and ordinary insulin. He has pointed out, moreover, that the quantitative increase of dex-

TABLE II

S, aged forty (1936). Diabetes discovered 1 year ago (1935) during an insurance examination. Plays squash three times a week in winter and tennis three times a week in summer. Diabetic curve on glucose tolerance.

Date	Blood Sugar	Urine Sugar	Symptoms	Insulin	Diet
Feb. 1936	170	2+	Seen once a month since this date.	Prot. 40 once daily	Cho. 125 Prot. 80 Fat 150
2/3/38	74	0	Feels fine. Seemed a little hazy in talking to me. Called him 1½ hrs. later at club and he stated he was feeling fine but asked why I called. He did not remember the visit to my office.		
2/13/38	179	1+			
5/31/38	9 A.M. 164 11:30 A.M. 157 4:30 P.M. 118	1+ 1+ 0	Plans to play golf.	P 30 A.M. R 5 P.M. if shows sugar while following this am't exercise.	
6/2/38	43		States 2 hours after playing squash, took usual glass orange juice. He next remembers his wife crying over him at home. Had driven through heavy traffic between 5 - 6 P.M. When I saw him his bl. sug. was 43. However, he had danced until 2 A.M. the evening before.		
Oct. 1939	29		Son disturbed him while shaving in bathroom. Son states he attacked him with razor. Only due to lack of father's usual strength was son able to eliminate an accident. Wife states he acted as usual when awaking that A.M. Did not have usual mental dullness that comes with reactions.	P 25 A.M. R 0-5 P.M.	

trose in the urine after breakfast may alarm the physician into thinking that the patient has a markedly elevated blood sugar, whereas, only a relatively mild and transient elevation actually occurred. Finally, hypoglycemia from the use of protamine zinc insulin may be prolonged beyond twenty-fours, until an accumulative effect results in a severe reaction. One must always remember the severity of the reaction from protamine zinc insulin may be due to prolonged release of insulin from the site of repeated injections. As a result, permanent cerebral damage develops and a continuous low blood sugar over a period of days leaves the patient unable to interpret his difficulties. The public may think he is peculiar, but not realize the cause.

The patient has been taught to expect certain physical change as the symptoms of an impending reaction. They are principally, palpitation, and sweating with regular insulin, and nausea, vomiting and headache with protamine insulin. We next tell them asthenia develops in a later stage of both conditions. These statements are all very true, but we rarely impress upon the patient's family the necessity of watching for other

bizarre symptoms. There are the neurological phenomena that occur with hypoglycemia. Vertigo and diplopia may be understood by the patient but tremor and ataxia, which the patient's family or the public may observe, is such a late manifestation that he may not be able to interpret them. This is followed by paresthesia, aphasia, twitchings and rigor and later by weakness or paralysis in one limb or group of muscles. One patient demonstrated this so completely that it was thought she must have developed a cerebral hemorrhage. We have been lead to believe that a reaction is demonstrated by a polysymptomatic condition, forgetting that monosymptomatic manifestations may occur. Monosymptomatic seizure may be shown only by the development of a tic.

All the above manifestations are only neurological and again we must turn to mental changes for expression of hypoglycemia. Here again the symptoms may occur alone and the usual findings expected and discussed above may not appear. It is for that reason we have to be so careful in evaluating our findings before any definite decision is made. There may, at times, appear signs of irritability, anxiety, depression or excitability.

DIABETES MELLITUS—BEARD AND LAYNE

TABLE III

George L., aged seventeen, diabetic since 1 year old

Date	Blood Sugar	Urine Sugar	Symptoms	Insulin	Diet
1933	171			R 30 A.M. 10 Noon 12 P.M.	Cho. 165 Prot. 75 Fat 140
1934	150			R 25 A.M. 0 Noon 7 P.M.	Cho. 150 Prot. 80 Fat 125
1935	A.M. 207 P.M. 140	6 A.M.— 11 A.M. 9 gms. 11 A.M.— 6 P.M. 8 gms. 6 P.M.— 6 A.M. 10 gms.		Prot. 20 A.M. Reg. 5 Noon 6 P.M.	
Moved to Milwaukee					
1940	8 A.M. 126 11 A.M. 196 2 P.M. 134 4 P.M. 86 10 P.M. 54 4 A.M. 37	0 2+ 1+ 0 0 Unable to arouse when taking sugar	3-4 mo. before seeing him in 1940: Mother states he was difficult to awaken in A.M. Teacher states was not as keen in school as formerly. Patient states has been unable to concentrate on his work. Feels O. K. except headache at times. Brought to Minneapolis because found wandering near his home.	P 32 A.M. R 35 R 40 P.M.	Cho. 150 Prot. 80 Fat 120
All symptoms above disappeared after restricting to P 25 + R 30 A.M. R 20 P.M.					

These are all conditions which occur in so-called ordinary individuals. Therefore, it must be recognized that hypoglycemia brings many sociological and medico-legal aspects.

There may be only a partial disorientation and confusion, with a tendency to loiter and slowness of thought and action. At these times the patient is not able to comprehend his condition. It is, therefore, very important that some member of the family recognize what a condition of irritability, excitability, or hilarity may demonstrate. At times some diabetics become morose and sullen and apparently very embittered with people around them. One wife told us at times her husband, without apparent cause, refused to sit at the table with her and engage in conversation. He stated later he could not remember the instance.

These patients, at times, have been known to isolate themselves in some other part of the house. Others, who are usually considerate, have become very rude. One patient, whose dinner was delayed one-half hour as a result of the late arrival of guests, met them with a rather blunt welcome. At another time this same individual, when taking his family to a public dining room became

very abusive to the management when he was delayed in getting his table as previously arranged. The next day his son remarked to him that he could not treat the public and his family as he had the previous evening. He was surprised and was not able to remember any of the conversation.

Some will not be able to think rapidly enough to forestall an automobile accident, and others are incapable of handling various types of machinery, depending on their occupation. One of our patients was seized with a hypoglycemic reaction while driving from the city to his home, late in the evening. His only remembrance was his one thought to drive through traffic as fast as possible. Fortunately, no accident occurred. He was greatly surprised, upon returning to consciousness at home, to find his wife giving him orange juice and crying about his condition. Stenographers have been known to sit at their machines and cry, not able to operate them or understand the cause of their trouble. Individuals running machinery, such as seamstresses, locomotive engineers, et cetera, should be warned of the possible danger to themselves and the pub-

DIABETES MELLITUS—BEARD AND LAYNE

TABLE IV

Leo R., aged thirty-two						
Glucose Tolerance			Diabetic for 7 years—on unknown diet—showed no improvement. Put on Prot. Z. insulin 20 units once a day—later on as much as 120 units a day. Then dropped off to 20 units twice a day because on city relief. Headache, nausea, vomiting. On different occasions he beat his wife, was unable to operate his machine and knocked his hand through the bedroom wall.			
	OPD	Hospital				
Fast	64.0	76.3				
1½ hr.	167.1+	162				
1 hr.	247.4+	211				
2 hr.	241.4+	214				
2½ hr.	208.4+	139				
Date	Blood Sugar	Urine Sugar	Symptoms	24-Hr. Output	24-Hr. Urine Sugar	Insulin
10/21/40	122	4+				Prot. A.M. 20 units P.M. 20 units
10/29/40	51	3+	Had reaction with headache and dizziness. Last symptom remembered was seeing double. Eye Department says eyes O.K.	3,300 c.c.	54.12 GM.	Reg. 15/0/15
11/ 8/40	Glucose tolerance above.					
11/14/40	69	4+	Now sweating and hungry. Personality changes—sadist ideas.	3,100 c.c.	77.5 GM.	Reg. 10/0/0
11/26/40	96	4+				
12/ 3/40	100	4+				
1/ 5/41		4+	Feels fine—no symptoms. Working daily. On general diet.			
Entering hospital for metabolic study. Diagnosis on entrance—Mild diabetic with low renal threshold.						

lic. One individual who was promoted from fireman to railroad engineer refused his new position for this reason. He stated to me, the railroad for which he worked had never been able to find glycosuria during his yearly examination. He attributed this to the extreme care he and his wife took to keep his urine sugar free. These patients may be unable, during their reactions to make the simplest decisions and at times have been unable to take food or sugar which they might carry with them for such an emergency. One patient during a reaction while shopping downtown was able to decide that she needed candy and went to the confectionery store, but after arriving was unable to ask for it. At other times they have been known to misname the object they desire. Other patients have been known to be very abusive and scold their family and friends. Children have become problems to parents and teachers because of their misbehavior late in the mornings and afternoon towards the end of the school periods. Earlier in the day they have been different individuals and the most coöperating and brilliant students.

As a result these abnormal behaviors gradually

exclude a diabetic from social contact with the world and their family. At times, business associates misunderstand their remarks and it may mean their success hinges on a condition that even the doctor has not understood or explained to the patient and family. Estrangement between husband and wife has been known to occur. Because of his anger a husband beat and injured his wife. One patient was ashamed to find later that he had blackened his wife's eye. We have all been led to believe that these patients usually develop asthenia early but apparently this may be a later manifestation and may occur after some mental abnormality.

At times a diabetic may develop increased difficulties in speech, thought and action. Sudden pseudo-hysteria, negativism, psychomotor hyperactivity have occurred. It may manifest itself by maniacal behavior and acts of violence. Exhibitionism, sexual perversity, compulsive laughter and crying occur. Impulsive actions may be followed by later increasing disorientation and confusion. Other individuals have developed delusions condemning their friends, family and business associates. Hallucinations and wander-

TABLE V

Mrs. U., aged sixty-six.

Date	Blood Sugar	Urine Sugar	Symptoms	Insulin	Diet
	Admission 565 Discharge 142	0	Entered hospital for bronchopneumonia. While there changed from regular insulin t. i. d. to Prot. 80 u. once a day before breakfast.		Cho. 120 Prot. 60 Fat 60
Sept. 1939	45	0	Been at lake all summer. Sugar free all the time. For the last month has had headache, nausea and vomiting. Today developed weakness of left side of face and right arm and leg.	P 40 A.M. R 40 P.M.	Diet not known.

Gradually over two weeks symptoms of headache and other disturbances disappeared. Paralysis of face and arm improved. At present is unable to remember dates or to call articles and individuals by their proper names. This condition has never entirely disappeared.

ings may appear. One such young man was found wandering within two blocks of his home unable to tell where he lived and because of his mental condition and ataxia was placed in jail by an officer of the law. Only the fact that some of his boy friends reported his difficulty to his mother, who immediately telephoned instructions to the police station, saved him from serious and prolonged hypoglycemia. Within a few minutes after taking some sugar, he was able to tell his name and home address. The last event he could recall was playing baseball on a vacant lot. Because of the ataxia, confusion, abusive language, and attempts to hit people these individuals may be picked up on the street and thought to be intoxicated.

Melancholia and paranoia occur at times. In some instances they have even been placed in hospitals as insane until the trouble is recognized by an intelligent physician. At times their actions have directed them to break dishes and furniture in public or at home. One such individual entered the University Hospital during the last year. He had tried to commit suicide on three occasions. Not until his hypoglycemia was discovered and corrected did his melancholia disappear. This basis for defense in a few instances, when an individual has killed another person, stating later he was not responsible for his actions, has been recognized by the court.

It has been reported at times the release of inhibitions from moral, religious, and educational restraints have been expressed by pathological state in which various sexual reactions have occurred. One man stated to us that he was very ashamed he had abused his wife. His embarrassment on finding he had attempted to hit her

while in bed was only substantiated by the fact that he had destroyed the plaster on the wall next to his bed where his wife stated he had driven his fist while attempting to hit her. Nocturnal maniacal episodes have been followed by calling the police when the family or public have not recognized the cause.

There is also a certain aspect of civil law which must be considered. Wills and other legal documents drawn up when the party is in a hypoglycemia reaction may be contested. One of us has insisted in two cases when large wills were being signed to have blood sugar determinations at the same time to protect the testator's wishes. Civil suits for libel and slander against diabetics should take into account the possibility of hypoglycemia. Divorce and breach of promise suits should be considered with this view in mind. There are presented in the following charts various cases in which blood sugar determinations were completed during peculiar sociological reactions. It is interesting to review the blood sugar reports.

In conclusion, it is our belief that insulin, and protamine zinc insulin in particular, should be used with a great deal of care. It is our opinion, that injections of protamine insulin greater than forty units a day are not advisable and frequently are dangerous. Urinary sugar should not be depended upon, if peculiar mental conditions are occurring. The patient's urine should not be continuously sugar free. Blood sugar determinations should be made at periodic intervals even when there is no urinary sugar. As much, if not greater care should be extended in monthly supervision of a diabetic taking insulin who shows little or no glycosuria throughout the day,

as the patient who is showing large amounts of sugar in the urine. His family should be acquainted with the fact that mental changes may occur in hypoglycemia and today the family should be trained as well as the patient in these phases of diabetic therapy. However, we do think we should impress upon the patient and family that these conditions only rarely occur and are not the usual results if care in therapy is used. We do wish to bring the facts presented

here, as well as our findings in the charts, to the attention of the doctor. At a rule, he has not been conscious of this phase in insulin therapy, especially if using protamine insulin in large amounts.

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HISTAMINASE IN THE TREATMENT OF URTICARIA AND OTHER DERMATOSES

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IN 1939, Cumming and I⁷ reported seventeen cases of urticaria, two of dermatographism, and eight of atopic dermatitis, which were treated with histaminase. The results are summarized in Tables I, II and III.

Since the number of our cases was so small, we were unable to draw definite conclusions concerning the value of the drug in the treatment of the dermatoses mentioned, although we believed that histaminase was a useful adjunct to the treatment of urticaria, since our cases were of relatively long duration and had, in most instances, proved refractory to the usual therapeutic measures.

Although numerous reports concerning the use of histaminase in the treatment of various allergic diseases have appeared since our publication, those of Knoll and Beinhauer,⁶ Forman,³ Baker,² Altose,¹ and Goldberg⁵ are of special interest to the dermatologist. After thorough study, Knoll and Beinhauer concluded that the syndrome of anaphylaxis in guinea pigs was unaffected by pre-treatment with histaminase, and that intracutaneous wheals produced by histamine in normal, as well as allergic persons, were not altered by the previous administration of histaminase. The clinical effect of the drug in patients treated by Knoll and Beinhauer is summarized in Table IV.

The authors noted that more than one-half of the patients who were decidedly improved were

TABLE I. URTICARIA—SEVENTEEN CASES

Clinically cured	10	(59%)	In the cured cases the duration of treatment varies from 4 days to 3 weeks. Average time for cure 10.7 days.
Improved	2	(12%)	One patient had urticaria for 9 months and was 50 per cent improved in 3 weeks. The second patient had urticaria for several years, and was 90 per cent improved after 2 months' treatment.
Unimproved	5	(29%)	In the unimproved cases the durations were: 1, several weeks; 2, several weeks; 3, five months; 4, two years; 5, three and a half years.

TABLE II. URTICARIA FACTITIA
2 cases

No benefit in either case. One treated three weeks, the other six weeks.

TABLE III. ATOPIC DERMATITIS
8 cases

No definite improvement in any. One month's trial of histaminase given, either without local therapy or without change in local therapy in use at the time of institution of histaminase.

affected with atopic dermatitis or acute urticaria, two diseases given to spontaneous regression or even complete involution. The results with acne vulgaris were practically negative. The toxic effects from histaminase were negligible.

Forman, in January, 1940, reported a study of

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URTICARIA AND OTHER DERMATOSES—LAYMON

TABLE IV

Diagnosis	Total No.	Pro-nounced improvement	Slight improvement	No improvement
Allergic				
Acute urticaria	13	5	0	8
Chronic urticaria	13	0	0	13
Physical urticaria	3	1	2	0
Atopic dermatitis	21	10	1	10
Angioneurotic edema	3	1	0	2
Contact (allergic) dermatitis	14	4	1	9
Erythema multiforme	6	2	1	3
Asthma and hay fever	12	2	2	8
Serum sickness	4	3	0	1
Allergic gastro-enteritis	1	1	0	0
Migraine	4	1	1	2
Allergic rhinitis	7	1	3	3
Total	101	31	11	59
Nonallergic (miscellaneous)				
Acne vulgaris	29	3	3	23
Senile pruritus	2	1	0	1
Pruritus ani	2	0	0	2
Total	33	4	3	26
Grand total	134	35	14	85

twenty-nine cases. He gained the impression that histaminase offered a new and helpful approach to the treatment of urticaria, angioneurotic edema, atopic dermatitis, and allergic coryza. His results in contact dermatitis and asthma were much less satisfactory. No untoward side effects were noted except in one case of urticaria in which the drug seemed to aggravate the condition and cause nausea and hyperacidity. He felt that no final conclusions could be reached without further studies.

Baker, in 1940, reported the successful treatment of two patients with hypersensitiveness to cold by the combined use of histaminase and a method of systemic desensitization to cold (immersion of the hands in ice water for gradually increasing periods). Baker also cited the excellent results obtained by Foshay and Hagebusch⁴ in the treatment of serum sickness and the use of the drug by Roth and Ryneerson⁸ in the treatment of insulin reactions.

Altose treated eighteen cases with histaminase, including seven of urticaria, four of angioneurotic edema, three of both combined, and four of allergic dermatitis. In 44.4 per cent great im-

provement was obtained, in 33.3 per cent moderate improvement, and no change in 22.2 per cent. Results in the various types are shown in Table V.

TABLE V

	Greatly improved	Moderately improved	Un-improved
Urticaria only	4	3	
Angioneurotic edema	4		
Both		2	1
Allergic dermatitis		1	3

Altose stated that several of his patients who were being treated with histaminase were able to freely eat foods which had previously caused immediate urticaria. He added, however, that the fact that all of his cases of acute urticaria were relieved did not prove the efficacy of the drug, since urticaria is a capricious disease, and often terminates spontaneously. In his opinion, histaminase proved of definite value in chronic urticaria.

Goldberg, also in 1940, reported the results in dermatoses treated by histaminase orally, shown in Table VI.

TABLE VI

Diagnosis	No. of cases	Results	Comment
Papular urticaria	1	Cured	Histaminase alone
Atopic dermatitis	3	Improved	Histaminase plus other therapy
Dermographism	2	Unimproved	Histaminase alone
Allergic eczema	3	2 unimp. 1 imp.	Histaminase plus other therapy
Chronic urticaria	13	8 cured 5 imp.	Histaminase alone
Idiopathic pruritus	3	Slight improvement	Histaminase alone

Ten additional cases of chronic urticaria treated with injections of histaminase were all improved. Goldberg felt that the drug was a helpful factor in the treatment of allergic dermatoses. His patients who received intramuscular injections of histaminase had much better results than

those who received the enzyme in tablet form. In Goldberg's opinion, further clinical and laboratory data are necessary before any definite conclusions can be drawn concerning the specific value of the drug.

We have continued the use of histaminase in various dermatoses since our report in 1939, and can now add the data given in Table VII.

TABLE VII

Disease	No. of cases	Comment
Urticaria	35	21 clinically cured 14 unimproved
Acne vulgaris	7	No cases appreciably improved
Light sensitization dermatitis	1	Much improvement
Dermographism	2	No change
Atopic dermatitis	11	No improvement

In all of the cases of urticaria which did not improve, the drug was continued for one month, and in acne for two months. In the "cured" cases of urticaria, the time varied from four days to four weeks. The dosage varied from 60

to 120 histamine-detoxifying units daily (one unit represents the quantity of histaminase which is capable of detoxifying 1 mg. of histamine hydrochloride during twenty-four hours at a temperature of 37° C.).

As in our first group of cases of urticaria, those selected were of relatively long duration, and in most instances had proved refractory to the usual therapeutic measures. From personal experience with histaminase in the treatment of urticaria and study of the reports of other observers, it seems justifiable to state that the drug is of value in certain cases of this disease. Two-thirds of our cases to which histaminase was administered obtained satisfactory results.

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THE SEARCH FOR UNITY

If we are to have a durable peace after the war, if out of the wreckage of the present a new kind of coöperative life is to be built on a global scale, the part that science and advancing knowledge will play must not be overlooked. For although wars and economic rivalries may for longer or shorter periods isolate nations and split them up into separate units, the process is never complete because the intellectual life of the world, as far as science and learning are concerned, is definitely internationalized, and whether we wish it or not an indelible pattern of unity has been woven into the society of mankind.

There is not an area of activity in which this cannot be illustrated. An American soldier wounded on a battlefield in the Far East owes his life to the Japanese scientist, Kitasato, who isolated the bacillus of tetanus. A Russian soldier saved by a blood transfusion is indebted to Landsteiner, an Austrian. A German soldier is shielded from typhoid fever with the help of a Russian, Metchnikoff. A Dutch marine in the East Indies is protected from malaria because of the experiments of an Italian, Grassi; while a British aviator in North Africa escapes death from surgical infection because a Frenchman, Pasteur, and a German, Koch, elaborated a new technique.

In peace as in war we are all of us the beneficiaries of contributions to knowledge made by every nation in the world. Our children are guarded from diphtheria by what a Japanese and a German did; they are protected from smallpox by an Englishman's work; they are saved from rabies because of a Frenchman; they are cured of pellagra through the researches of an Austrian. From birth to death they are surrounded by an invisible host—the spirits of men who never thought in terms of flags or boundary lines and who never served a lesser loyalty than the welfare of mankind. The best that every individual or group has produced anywhere in the world has always been available to serve the race of men, regardless of nation or color.—RAYMOND B. FOSDICK: The Rockefeller Foundation—A Review for 1941.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

Frank C. Andrus, Pathologist

Presentation of a Case

DR. J. STRICKLER: The case is that of a sixty-one-year-old white male who was admitted to the Psychiatric Service of the hospital on April 17, 1942. At that time he was comatose, unresponsive, and was unable to swallow food or drink water. He was said to have developed pain in his back about eight months previous to admission which gradually had become worse. The pain radiated to the lower costal margin and particularly in the lumbo-sacral region.

DR. G. FAHR: So there is the history of fairly diffuse pains. Did he give a history of pain in his bones; did anyone get that?

DR. STRICKLER: He complained of pain in the back and anterior lower costal margin. We could not tell for sure whether the pain was in the upper abdominal region or lower chest.

DR. E. T. BELL: Did he complain that it increased on breathing or bending over?

DR. STRICKLER: Later he refused to move; any movement caused severe pain.

DR. F. ANDRUS: Was he mentally clear when you examined him?

DR. STRICKLER: Not when I saw him. We couldn't get anything out of him and he did not respond to questioning. On motion he would groan and complain incoherently.

DR. STRICKLER: He was studied on two occasions in another hospital in November and December of 1941 for two weeks at a time. X-rays were taken and Paget's Disease or hyperparathyroidism were considered. He was given a series of injections of arthritis vaccine with no effect. Late in January, 1942, he became debilitated and refused to move. He complained of extreme pain when anyone tried to move him or care for him. A week before admission he became comatose and unresponsive. He was seen by a psychiatrist who sent him into the hospital and that accounted for his admission to our Psychiatric Service. He could not swallow and he had to be fed through a nasal tube.

Physical examination revealed a systolic murmur at the apex which was not transmitted. The blood pressure was 132/80. The skin was brownish and was discolored, particularly over his face. He made facial grimaces and complained whenever he was moved.

Laboratory data: The hemoglobin was 41 per cent and the leukocyte count was 7,700. The urine contained two plus albumin, 25 to 20 red cells, and 75 to 80 white cells per high power field. The blood urea nitrogen was 121.8 mg. per cent and the creatinine 5.7 mg. per cent at the time of admission. On April 23, 1942, the blood urea nitrogen was 132.9 mg. per cent and the creatinine 6.8 mg. per cent. Plasma proteins were determined on two occasions and were found to be 11.5 grams per cent and 10.96 grams per cent. The fibrinogen was .479 gram per cent, globulin 8.075 grams per cent, and albumin 2.4 grams per cent. Treatment was limited to keeping up the fluid intake. He expired on April 24, 1942.

DR. BELL: What was his urinary output?

DR. STRICKLER: About 30 to 50 c.c. per day.

DR. BELL: That is the usual finding, oliguria.

DR. FAHR: What was the specific gravity of his urine?

DR. STRICKLER: It was 1.015 on two occasions. We looked for Bence-Jones protein in the urine but it was absent.

DR. BELL: It is absent in about one-third of these cases. Now the problem here for the clinician to determine is why this man had uremia. I remember one case that had a protein of 13 with no urinary disturbances whatever. There was no renal insufficiency. Some of the patients, however, develop uremia. There are three reasons for this. One is the plugging with casts which causes anuria or oliguria. Another is that some incidental renal disease is present, like pyelonephritis. The third is that just what we have today which is only the second case in the literature.

DR. ANDRUS: Dr. Strickler, what led you to take the plasma proteins?

DR. STRICKLER: His anemia was the main thing.

DR. ANDRUS: I was interested in this case because the technician was concerned by the high level of the plasma proteins. The blood plasma was so viscous that it would hardly run from a pipette. When I learned the high level I was sure that we were dealing with a case of multiple myeloma.

CASE REPORT

DR. GRATZEK: The x-ray films show striking changes. The skull plate is especially highly characteristic of multiple myeloma.

DR. FAHR: How can you tell them from other metastatic lesions?

DR. F. GRATZEK: Because they are rounded. Of course, other conditions such as Schuller-Christian's disease give findings like these. There are also rounded areas of rarefaction in the ribs, upper femora, pelvis, and scapulae and clavicles.

Autopsy Findings

DR. R. PAPERMASTER: The chief findings were limited to the bones and kidneys. The kidneys were enlarged to about twice their usual size. The ribs and sternum were soft and fractured very easily. They contained nodules which were soft and which destroyed the surrounding bone.

Microscopic Findings

DR. ANDRUS: Sections of the bone marrow have the structure that we ordinarily see in multiple myeloma.

The tumor mass is made up of plasma cells. The cells have an eccentrically placed nucleus and a basophilic cytoplasm. We should mention that there is one type of multiple myeloma which does not give these discrete punched-out areas but involves the bones diffusely. If you don't examine bone marrow in such a case, you might miss the diagnosis.

DR. BELL: The kidneys show nothing but cloudiness grossly and no diagnosis can be made from that. They were enlarged. The first thing that we want to look for is to see if there are any casts in the tubules. The tubules are not dilated here. In most cases we get uremia because there are so many casts that the whole kidney is plugged. In these kidneys there are quite a number of casts but not enough to obstruct the kidneys. In the cortex there is shrinkage of the tubules. The glomeruli appear to be avascular and there is disuse atrophy of the tubules; they are not getting enough to do. There is no glomerulonephritis but a precipitation of protein in the glomerular capillaries which decreased the glomerular filtration. That is why this patient developed oliguria and uremia.

CASE REPORT

MASSIVE NON-NEPHRITIC EDEMA FOLLOWING RESPIRATORY INFECTIONS

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IN THIS report I shall describe two patients exhibiting a form of edema which I have never seen previously and which I have not found completely described in the literature covering edema. The edema, in both cases in my opinion, is extrarenal in origin.

Case 1.—A male physician, then thirty-seven years of age, developed in December, 1938, an acute laryngitis and bronchitis. He did not stop work but took some steam inhalations and used generous doses of an expectorant cough syrup containing calcium iodide, ephedrine and nembital. After five days he became severely nauseated and vomited several times in a twenty-four-hour period. This was thought probably due to the action of the iodide. No diarrhea occurred. Mild upper abdominal cramps and tenderness were felt for the next few days. The iodide expectorant was stopped (the bronchitis having improved just before the nausea appeared) and the abdominal discomfort disappeared, to be followed (ten days after the onset of the original infection) by a generalized pitting edema, most marked in the lower extremities. His weight increased thirteen pounds within a week. Physical examination revealed no abnormalities of the heart or lungs. He entered a hospital where the laboratory tests were as follows:

1. Repeated urine examinations showed no albumin or abnormal microscopic constituents. A trace of sugar

was seen once. All urine specimens were acid in reaction and their specific gravity ranged from 1.015 to 1.020.

2. Blood examination showed: hemoglobin 90 per cent; white blood count 8,300 to 9,300; differential count normal.

3. The blood urea nitrogen was 13.1 mgm.; the blood sugar 126 mgm.; blood chlorides 500 mgm.; blood calcium 8.3.

4. The basal metabolism rate was minus 1 per cent.

5. A chest roentgenogram showed a normal heart shadow and no lung disease.

6. An electrocardiogram was normal.

The blood pressure was 124-78. There was no fever present at any time.

The patient was given a low salt diet, and fluids were limited to 1,200 c.c. daily. He was placed on six grains daily of desiccated thyroid and three grams daily of ammonium nitrate. (The physician in charge added the thyroid although the edema in no way suggested a myxedema.)

Within three days time the patient lost over thirteen pounds of fluid with a copious diuresis. He left the hospital and resumed work. There has never been a recurrence of this edema in the succeeding two and a half years, and he has remained in excellent health.

Case 2.—A married woman, a housewife, fifty-seven years of age, was seen by me on January 13, 1941. Three weeks previously she had developed abdominal cramps, diarrhea of four to six stools daily, and had vomited

Read before the meeting of the Minnesota Society of Internal Medicine, Minneapolis, May 17, 1941.

several times at the onset (similar to the infectious gastro-enteritis cases we were seeing frequently last winter). No blood or mucus was seen in the stools. A week before I saw her she developed a severe head cold and two days later a severe cough with subnormal tightness and the expectoration of considerable mucus. With the onset of this head cold and bronchitis she developed a generalized edema, most marked in the lower extremities. She had never had this before except that for many years a slight edema of her ankles would appear if she remained on her feet for several hours.

Her weight had increased in the past week from 184.5 to 202.5 (a gain of 18 pounds).

Physical examination revealed inflammation of the pharynx and uvula. No cardiac enlargement was determined on percussion. No heart murmurs were heard. Numerous mucous râles were heard through both lung bases posteriorly. Her abdomen was obese but I thought there was a small amount of ascites present. A massive pitting edema was present in the lower extremities extending well up onto the thighs.

Laboratory.—1. Urine alkaline; specific gravity 1.007; no albumin, sugar or abnormal elements.

2. The hemoglobin was 76 per cent (13 gms.); red blood cell count 4,410,000; white blood count 6,350 to 12,400.

3. The Wassermann test was negative; the blood cholesterol 220 mgm.; blood urea nitrogen 10 mgm.; blood sugar 102 mgm. The sedimentation rate was 57 mm. in one hour.

4. The chest roentgenogram showed a transverse type of heart measuring 52 per cent of the chest diameter, and very prominent bronchial markings indicative of bronchitis.

The temperature was 99.9; pulse 84; blood pressure 142-80.

This patient could not afford hospital care and being from out of town was not eligible for Ancker Hospital, so she was kept in bed at the home of her daughter. A salt free diet was given and her fluids restricted to 1,000 c.c. daily. She was given nine grams daily of potassium nitrate and a mild expectorant cough syrup without ammonium chlorides or iodides in it.

She passed two quarts of urine in the first twenty-four hours and another three quarts in the second twenty-four hours. In one week after beginning this treatment her weight dropped fifteen pounds and the patient returned to her home. A recent letter states that her edema has not returned.

Comment

To explain the occurrence of edema in these two cases, one must look for causes outside the kidney. According to Rehberg,⁵ albuminuria is one of the symptoms in practically all diseases of the kidney. An almost constant finding in nephroses is cholesterinemia. Neither patient had albuminuria and in the one whose blood cholesterol was determined it was normal. In all diseases studied where extracellular edema is known to exist (kidney disease, heart disease, ascites, hydrothorax, anemia, beriberi, nutritional or hunger edema), the cause of the edema may be:

1. Decreased colloid osmotic pressure of the blood;
2. Increased capillary pressure (as in heart disease);
3. Injured abnormally permeable capillaries.

As long as these three factors are normal, Rehberg believes extracellular edema will not be formed.

Unfortunately in neither case were the plasma proteins determined. However, normally the colloid osmotic pressure of the blood is 350-400 mm. of water and edema does not occur in nephritis or nephrosis until this is lowered to 250 mm. of water. This drop is due

to the loss into the urine of small molecules of plasma albumin which exert a high osmotic pressure. I believe that the absence of albuminuria in these two cases points against a change in blood osmotic pressure as being a factor in their edema.

Increased capillary pressure, which is the chief cause of edema with heart disease, can be ruled out here.

Increased permeability of the capillary walls is a transient condition and according to Snowden⁶ is seen in the early stages of acute nephritis or in similar toxic states, especially in streptococcus infections. The blood proteins are not reduced but Fishberg¹ states that the edema fluid must show considerable amounts of protein in order to assume increased capillary permeability. Glomerular capillaries, of course, may be included, causing albuminuria, but it is theoretically possible to have some increased capillary permeability with edema but no albuminuria.

I believe that the factors of sodium chloride and water intake must be considered carefully in explaining these two cases of edema. Leiter³ in discussing chronic nutritional edemas describes in addition to a chronic damage from gradually developing emaciation and a slow fall in the plasma proteins, an acute insult which is due to a temporary severe diarrhea or some infection followed by a period of relatively huge intake of salted fluids (such as soups) to appease the urge for food; edema appears quickly. If plasma proteins are not too low, rest in bed and restriction of fluids and salt dispel the edema. Hastings² points out that edema fluid can be formed only to the extent that salt and water are available for its formation. Where a so-called tendency to edema is present, the ingestion of relatively slightly increased amounts of salt causes edema. Withholding water and salt in these cases often prevents edema.

My explanation of these two cases of edema then includes:

1. A possible increased permeability of the capillaries due to infection.
2. Increased intake of water.
3. Increased sodium chloride intake. In one case the patient admitted being a heavy user of salt normally. In the other case the patient consumed extra amounts of heavily salted soups, salted butter, etc.
4. In one patient effervescent alkalies were also used, during the days preceding the onset of the edema. The sodium ion is known to favor retention of fluids and decreased urine output (Reed).⁴

In both patients prompt diuresis followed the limitation of fluids, restriction of sodium chloride and the use of adequate amounts of ammonium nitrate or potassium nitrate, respectively. No recurrence of edema has been had by either patient.

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HISTORY OF MEDICINE IN MINNESOTA

HISTORY OF THE MINNESOTA STATE MEDICAL SOCIETY

By **ARTHUR S. HAMILTON, M.D.**
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(Continued from May Issue)

Eleventh Annual Meeting

The eleventh annual meeting was held in Saint Paul on June 17, 1879, the president, Dr. J. E. Finch of Hastings, presiding.

About forty members were present at the opening session, but this number was subsequently considerably increased by the election of twenty-one new members.

The medical and surgical papers presented at this meeting resemble those presented the year previously, but the surgical cases presented, while all case histories, were a little more varied and included other than emergency cases. Although these papers were undoubtedly interesting to those present, there was nothing in them that would interest a physician today, except for their novelty. The retiring president's address was largely devoted to therapeutics and materia medica. Dr. Finch did briefly mention Koch's work on micro-organisms, but stated that the investigations were inaccessible to the practitioner.

Twelfth Annual Meeting

The twelfth annual meeting was held in Albert Lea on June 15, 1880, in the Masonic Hall. Twenty-three new members were admitted. At this meeting, for the first time apparently, an exhibit of microscopic sections of tissue was shown. Microscopes were also exhibited and an essay was read on the use of the metric system in writing prescriptions. An amendment to the constitution was presented providing for the admission of women physicians to membership. After a prolonged debate the amendment was passed by a vote of 39 to 3 and women belonging to the Ramsey County Medical Society were admitted.

The address of the president, Dr. A. C. Wedge of Albert Lea, was short and contained nothing of medical interest. Dr. E. J. Abbott of Saint Paul, as chairman of the Committee on Surgery, read an address in which he reviewed the new advances in surgical technique. "The committee", he said, "made inquiries in regard to antiseptics, but so far have been unable to learn of a single case in which the Lister method has been followed in this state. We think a large number of the members use disinfectants to some extent, i.e., carbolized water for washing wounds, et cetera, and some use carbolized gauze as a dressing." He then discussed Listerism and stated that Mr. Lister in answering criticisms of his technique said that hygienic conditions varied with the different surgeons for or against the method. Mr. Spence, for instance, had his wards cleaned every year, while the wards of Lister were allowed to go uncleaned for three or four years, "an admission which does not reflect much credit on the antiseptic advocate."

It seems that more is claimed for the Lister treatment than it really deserves." He also mentions the use of the Bigelow lithotrite and the use of hot water and hot compresses in arresting capillary hemorrhage in wounds, a method which he warmly recommends. This appears not to have been in general use up to that time.

Most of the surgical cases reported were short, being nothing more than reports of patients attended. Dr. Abbott remarked during the session that but few had responded to the request for reports of surgical cases. Dr. Daniel Leasure of Saint Paul read a long paper on "The Law of Heredity" and there was a report by Dr. C. H. Salisbury, chairman of the Committee on Medical Jurisprudence, on a medical legal case. The constitution of the Society underwent a radical revision and the necessity for careful examination of the patient and a critical evaluation of the symptoms was more carefully considered.

Thirteenth Annual Meeting

The thirteenth annual meeting of the Minnesota State Medical Society was held in Saint Paul, June 21 and 22, 1881. Dr. C. H. Hewitt of Red Wing presided. Twenty-seven new members were admitted to the Society and Dr. A. J. Stone was elected president for the ensuing year.

Numerous amendments to the constitution were proposed, and Dr. Daniel Leasure, president of the Ramsey County Medical Society, in his address of welcome, noted that "There is a great diversity of opinion amongst leading surgeons as to all that is claimed for Listerism." He also criticized many physicians who "are already looking for a medicine that will *cure*, instead of trying to understand the true nature of the perverted life force that we call disease."

A dozen surgical cases were discussed by Dr. C. A. Wheaton of patients who had been under his care. These were much better presented and discussed by him than any heretofore brought before the Society.

The Committee on Diseases of Children submitted many reports of childhood disease and presented a long discussion on summer diarrhea.

This meeting was superior to those of the preceding years and the science of medicine was becoming more modern. The Society now had a membership of one hundred and seventeen. Six honorary members and twenty-seven active members had died since the Society was organized.

Fourteenth Annual Meeting

The fourteenth annual meeting of the Minnesota State Medical Society was also held in Saint Paul, June 6 and 7, 1882, Dr. A. J. Stone of Saint Paul, presiding. Dr. P. H. Millard of Stillwater was elected president for the coming year. Fifty-six new members were elected.

The Society did no constructive business at this session as the American Medical Association was meeting in Saint Paul at the same time and the committee reports were presented by title and ordered printed.

Dr. C. H. Hewitt presented an excellent address on "The Problem of Medicine as a Professional and Practical Art." This was discussed in many phases and certainly must have made a strong impression on his hearers.

The Committee on Diseases of Children made a long report, covering mostly gastro-intestinal conditions. As there was no understanding at that time of the part played by bacteriological contamination of milk, there was nothing in the report of interest to us now.

A large number of surgical histories were presented by Drs. McGaughey,

Wheaton, Hewitt, Dunsmoor, Dunn (who was then in Shakopee), R. L. Moore, Dedolph, R. W. Hunt, D. A. Stewart, L. H. Munger, D. W. Hand, W. W. and W. M. Sweney, F. E. Bissell, A. T. Conley, C. Berry and H. L. Coon. One can see from the numerous contributors to this committee's report that surgery was advancing rapidly, as many of the surgeons reported the use of carbolic acid and carbolized catgut in the treatment of their cases.

The reports of the Committees on Obstetrics, Gynecology and Nervous Diseases were short, but that of the Committee on Epidemics was largely composed of a review of the work and activities of the State Board of Health, commending its activities and suggesting that the work of the Board be extended and that the Legislature of the State give it more power.

The Committee on Medical Jurisprudence made an extensive report, written by its chairman, Dr. C. H. Boardman, on "Medical Expert Testimony." The same discussion that is indulged in today regarding the subject was adequately presented and remedies proposed. Dr. J. H. Dunn read a paper entitled "Notes on a Suit for Malpractice." This was a long report, in which he gave the court testimony of Dr. J. H. Murphy of Saint Paul, who appeared as an expert in a case tried before the court in Shakopee. Certainly Dr. Murphy's testimony was contrary to ideas entertained by surgeons then and now. As Dr. Murphy was a witness for the defense, perhaps it is not difficult for one to understand his attitude. Dr. Dunn surely had considerable courage to present the paper and castigated Dr. Murphy as he deserved.

Dr. Brewer Mattocks, then in Faribault, presented a statistical report on "Consumption in Minnesota."

The members of the Society were invited to attend the reception given by Hon. D. M. Sabin and the citizens of Stillwater to the members of the American Medical Association, who were in Saint Paul for the national meeting at that time.

Fifteenth Annual Meeting

The fifteenth annual meeting of the Minnesota State Medical Society was held in Minneapolis, June 19 and 20, 1883. The president, Dr. P. H. Millard, of Stillwater, delivered his presidential address and Dr. W. L. Lincoln of Wabasha was elected president for the ensuing year. Fifty-seven new members were admitted to the Society.

Dr. Talbot Jones offered a resolution, which was unanimously adopted, requesting the government to adequately house the Army Medical Library which, then as now, was in an overcrowded and non-fireproof building.

Doctor Millard, in his presidential address, stressed the part that bacteriological research was playing in medicine. He also stated that the part played by bacteria in specific diseases was now recognized, adding "We hope denunciations of Listerism have quite reached their climax, and we prophecy for the memory of this distinguished surgeon a fame second to none." He also protested against the tendency of young men to favor too early in their careers the practice of a specialty, a decision which he considered a great mistake.

"The members of this Society are undoubtedly all aware that the last session of the Minnesota Legislature passed a 'Medical Practice Act', the penalties of which become operative after December 31 this year. I believe, gentlemen, this is a very fair bill and abreast of any act now in force in any of the states."

Dr. C. E. Riggs presented a long and carefully prepared paper on "Functional Disease of the Nervous System", which was well received, and Dr. A. W. Abbott again attacked the subject of "Diphtheria" which was then as it was until a

decade or so later, a subject of paramount interest because of its mortality. The subject was mainly confined to treatment by tracheotomy.

A committee appointed to outline measures for improving the annual transactions of the Society requested that the practice of presenting reports of cases and operations be abandoned as such are little more than a catalogue of the achievements of members of the Society and, so far as they contribute nothing to the knowledge of members, are of no real value. It was urged that reports be not a mere recapitulation, but original papers. This certainly was a step in advance as the surgical histories heretofore presented in most cases were nothing more than a list of operations performed.

Dr. C. N. Hewitt made a report on the prevalence of diphtheria and typhoid fever in the state from 1872 to 1881. In 1872 there were forty-two deaths from diphtheria reported and in 1881 the number was 1,397. That of typhoid fever rose from 315 in 1872 to 711 in 1881. Dr. Hewitt implored the physicians of the state to join with the Board of Health in an endeavor to control these epidemics. In another report by Doctor Hewitt he read the act to regulate the practice of medicine as passed by the Legislature and mentioned the part the University of Minnesota was to play in the act.

Dr. C. A. Wheaton presented a well thought out paper on "Shock as Related to Surgical Operations", especially to surgery performed following railway injuries.

Sixteenth Annual Meeting

The sixteenth annual meeting of the Minnesota State Medical Society was held in Stillwater, June 19 and 20, 1884. Dr. W. L. Lincoln, the president, delivered the annual address, which was mainly an appeal to the members of the Society to engage actively in the promulgation of the doctrines of hygiene and of preventive medicine, and to study carefully the relations between inebriety and heredity, with a view to the accumulation of reliable information upon this important subject.

Changes in the reports made by the various committees were discussed and it was decided that these reports should be edited, printed and distributed before the annual meeting so that they could be adequately discussed at the meeting. By this method it was hoped that many inadequate and too brief reports could be eliminated.

The meeting was not very well attended, possibly because the location was not very favorable. Many of the committee reports were read by title and were ordered printed in the transactions.

Doctor Millard, in reply to a question as to what had been accomplished by the State Board of Examiners, stated that he had the addresses of more than two hundred persons practicing medicine who have left the state since the enactment of the law, because of its requirements. He said that the Board would endeavor to protect the profession and to raise the standard of professional excellence in the state, and asked the Society to aid and countenance them in their efforts.

Herniotomy and the radical cure of hernia were discussed by Doctors Millard, Hunter, Moore and others. Doctor Staples described a treatment of hip joint disease by means of a leather splint.

The Committee on Obstetrics indulged in a long discussion of the value of irrigation and intra-uterine injections; no agreement was reached as to which procedure was proper.

Dr. J. B. McGaughey of Winona was elected president for the ensuing year and sixteen new members were elected to membership.

Dr. C. H. Hunter, in his report of the Committee on Surgery, stated that while abdominal surgery was still the chief work of the surgeons but one report of surgery of the kidney in the state was known. Since his report had been written, however, Dr. French had performed the operation of nephrotomy. The patients in both cases died.

The Committee on Nervous Diseases selected hysteria as the subject of its report and a number of physicians reported histories of patients. The treatment of diphtheria was again taken up by the Committee on Diseases of Children and medicated steam inhalation seems to have been the newest procedure.

Seventeenth Annual Meeting

The seventeenth annual meeting of the Minnesota State Medical Society was held in Saint Paul, June 18 and 19, 1885. Forty-two new members were admitted to the Society. Doctor McGaughey, in his presidential address, stressed the crying need for more scientific investigation of the causes of preventive disease. "If we except smallpox there no serious disorder of which it can truly be said that we possess the power to entirely prevent its appearance, or even to restrict it within prescribed limits when it does appear."

The changes in the constitution proposed at the last meeting were adopted and Doctor Dunsmore moved that the various sections be eliminated and that but two sections, Medicine and Surgery, be substituted. This was carried.

Dr. E. J. Davis of Mankato was elected president for the ensuing year.

In the Section on Surgery Doctor Dunsmore reported three patients with suppurative perityphilitis. In two of them he operated three weeks after the sudden attack and drained the abscess. In the third patient the pus sack ruptured into the bowel. Recovery occurred in all three patients.

Diphtheria, as in previous meetings, was reported upon but no definite means of handling the disease was apparent. Its prevalence and the high mortality following its advent in a community had made it a major item for consideration.

Dr. W. W. Mayo and Dr. W. J. Mayo reported a number of surgical patients under their care and the good results following treatment and care. Since cholera was now present in Europe Dr. Talbot Jones read a paper on the subject, giving a summary of the knowledge of the disease and what sanitary measures should be adopted, should the disease reach this country. He stated that the disease had on two different occasions in the past appeared here when it was prevailing elsewhere in the country.

Eighteenth Annual Meeting

The eighteenth annual meeting of the Minnesota State Medical Society was held in Minneapolis, June 17 and 18, 1886. Forty-two new members were admitted and Dr. H. H. Kimball of Minneapolis was elected president for the coming year.

There was some criticism on the methods of the Committee on Membership in determining the status of applicants. Doctor Millard stated that on July 1, 1883 there were 1,160 practitioners of medicine in the state, of whom more than one-third were not regular graduates. The five-year exemption clause enabled 119 to remain in the state; 260 were compelled to leave. At present there were only 995 practitioners in the state. Of these, seventy-two remained under the five-year exemption clause. During the life of the Board it had examined about eighty for licenses, but had licensed only one. Traveling quacks were now almost unknown. The Board refused to recognize the diplomas of

seventeen schools. In answer to a question, Doctor Millard stated that a license could be rescinded if the licensee afterwards showed himself unfit to hold it.

There was considerable discussion on what constitutes a sufficient course of medical education. It was decided that the Legislature should pass a more drastic law governing the admission of practitioners in the state.

The papers read at the meeting were largely reports of the patients under the care of individual physicians or the number of particular cases in which operation had been performed, or medical patients attended.

Nineteenth Annual Meeting

The nineteenth annual meeting of the Minnesota State Medical Society was held in Duluth, June 16 and 17, 1887. The president, Dr. H. H. Kimball, being absent, Dr. W. L. Beebe of St. Cloud, as vice president, presided and Doctor Kimball's address was read by the secretary.

The Transactions for this year were considerably smaller than those of several previous years, this being due to the amendment to the constitution submitted by Dr. A. W. Abbott that "the Committee on Publication select from the papers presented such papers as have sufficient scientific and literary interest to warrant their publication."

The papers selected for publication were much longer and better written than those heretofore published. We note particularly those of Doctor Millard on "The Treatment of Strangulated Hernia" and Dr. James H. Dunn, who had moved from Shakopee to Minneapolis, on "A Decade of Observations and Experiences in Antiseptic Surgery." The former presented nine cases and the latter, sixty-one. Doctor Dunn concluded his presentation, "I almost feel that an apology is due for considering at this late day the subject of antiseptic wound treatment, when to scientific surgeons there is but one side to the question. My excuse is solely that so large a percentage of general surgery is still denied the benefits of this great advance of the past two decades."

Dr. C. F. McComb of Duluth was elected president to succeed Doctor Kimball and twenty-two new members were admitted. This was the first meeting of the Society held in Duluth.

Twentieth Annual Meeting

The twentieth annual meeting of the Minnesota State Medical Society was held in Saint Paul, June 21 and 22, 1888. Doctor McComb, in his presidential address, confined his remarks mainly to medical education and the inauguration of medical teaching by the University of Minnesota. He hoped that the efforts of the University would be successful and that the professional excellence of the staff would rival any of our eastern colleges and would be a source of pride to all.

The volume of Transactions of this year was less voluminous than that of the previous year, notwithstanding the fact that several of the previous year's papers were included because they did not reach the committee in time for publication the year before.

There was a well thought out essay by Dr. F. Allport of Minneapolis on "Thoughts on Medical Progress" and one by Dr. Burnside Foster on "Personal and Public Prophylaxis Against Infectious Disease." Dr. W. J. Mayo wrote on "Inflammations Involving the Caecum, Its Appendix or Both." His conclusions and operative treatment were similar to those reported by Doctor Dunsmore at the 1885 meeting.

Dr. A. MacLaren of Saint Paul presented an essay on "The Etiology of Chronic Ovaritis with Reports of Cases." For some strange reason his name does not appear as a member of the Society. Another well presented essay by Dr. W. A. Jones of Minneapolis on "Localization in Disease" dealt with the localization of lesions of the nervous system and he illustrated his essay with a number of case histories of lesions of the nervous system.

Dr. C. A. Wheaton of Saint Paul was elected president for the ensuing year and twenty-five members were accepted to membership.

Twenty-first Annual Meeting

The twenty-first annual meeting of the Minnesota State Medical Society was held in Minneapolis, June 20 and 21, 1889. Doctor Wheaton, as president, presided at the opening session, but being unable to attend the second day he was succeeded in the chair by Dr. H. H. Wilcox, the second vice president. Forty-one new members were admitted to the Society.

A committee was appointed to revise the constitution and by-laws and to report at the next meeting. It was voted that the meetings be extended to three days instead of two, with but two sections—Medicine and Surgery, as voted upon at the seventeenth annual meeting. A stenographer was engaged to report the discussions of papers presented at the meeting, but not being familiar with technical terms, after a short trial he refused to continue.

Considerable discussion took place regarding the charges made against Doctor Bowers, superintendent of the St. Peter Insane Asylum. Several motions were made but rejected, upholding Doctor Bowers and expressing sympathy for him. It was thought that since investigation was under way it was inopportune for the Society to pass such resolutions at the time.

In Doctor Wheaton's presidential address he first reviewed the history of the Society, stating that at its organization meeting in 1869 the members numbered 119, all from the counties of Ramsey, Hennepin, Fillmore and Winona. Now its roster showed 357 active members. He then reviewed the advances made in sanitary legislation and medical licensing in the state and urged the members to aid and abet the State Board of Medical Examiners and the Board of Health. He stated that the doubts regarding the efficacy of antiseptic surgery had now passed and that omission of an antiseptic was equivalent to malpractice. He quoted statistics showing that since the adoption of antiseptics in surgery the mortality from various amputations had fallen from 52 and 39 per cent to 5 and 4 per cent. He regretted that many practitioners still were not using antiseptic precautions, adding, "He of the profession who fails to make the effort in this particular is jeopardizing his peace of mind in this world and compromising his eternal happiness."

Most of the papers presented at this meeting were surgical and those on gynecological and obstetrical subjects dealt largely with surgical aspects. Dr. W. W. Mayo discussed "Prostatic Hypertrophy and Its Treatment" and Dr. P. H. Millard spoke on "Intubation in Diphtheria." Medical education was also represented by several papers, notably perhaps because the many schools of medicine in the state had now closed, leaving the University School of Medicine practically unique.

A paper by Dr. Thomas McDavitt of Winona on "Acne Vulgaris" now seems rather amusing. He advocated the use of cold sounds as a treatment and cited cases showing its efficacy. The treatment was not original with him.

One notes that for the first time in Transactions of the Society the dis-

cussions of many of the papers are printed. Also for the first time, a paper definitely pathological in theme was presented by Dr. J. Clark Stewart of Minneapolis, with the specimens described.

Dr. J. H. Dunn of Minneapolis was elected president for the following year, winning the election by one vote over Dr. G. W. Wood of Faribault.

Twenty-second Annual Meeting

The twenty-second annual meeting of the Society was held in Saint Paul, June 19, 20 and 21, 1890. Dr. Dunn, as president, presided the first day but was absent on the succeeding days as were also the vice presidents. The secretary, Dr. C. B. Witherle of Saint Paul, therefore, presided.

The Committee on Revision of the Constitution and By-laws reported and the Constitution as revised and presented by the committee was accepted. The treasurer, Dr. Sheardown of Stockton having died during the preceding meeting, the acting treasurer, Dr. Witherle, presented the treasurer's report. Dr. W. L. Beebe of St. Cloud was elected president for the succeeding year. Twenty-four new members were admitted to membership.

The Transactions for this year were printed in a small imperial octavo form with pages in double column arrangement, by the Northwestern Lancet Company. It is evident that the papers presented had been published in the *Lancet*.

One cannot comment on all the papers presented but one should read the presidential address of Doctor Dunn. It is a long address and thoroughly covers the state of medicine at the time it was presented. It must have been very favorably received by his hearers. Notable essays were read by Drs. J. W. Bell, J. W. Andrews, C. L. Wells, J. H. Stuart, C. G. Slagel, J. W. MacDonald, C. H. Mayo, W. J. Mayo, Justus Ohage, C. A. Wheaton and Archibald MacLaren, and James E. Moore. In Dr. Moore's essay on "When Shall We Operate in Perityphlitis?" he uses the word "appendicitis." The early operation for appendicitis had not yet come, however.

All the papers presented at this meeting were much superior to any heretofore presented. Medicine was becoming, aside from laboratory researches, quite modern. The discussions of the papers, except in one case, were not printed.

(To be continued in the July issue.)

President's Letter

MEDICAL INVESTMENTS: SUMMER ROUND-UP

I

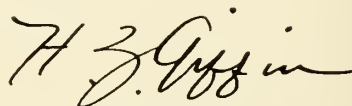
ALL of us who can do so will, I am sure, arrange to attend our Annual Meeting in Duluth. Medical education is the doctor's best investment. The value of his capital may be affected by low interest rates, his net income may be reduced by higher taxes, his purchasing power may suffer as a result of the increased cost of commodities, and the value of his real estate and securities may dwindle with the circumstances of conflict and the flux of events. But fortunately a professional man's knowledge of his profession and his accretions to that knowledge maintain their value irrespective of external factors. Money spent for books and postgraduate courses, for visits to hospitals and clinics, and for attendance at medical meetings yields a spiritual sense of comradeship, an intellectual satisfaction from increasing knowledge, and a practical preparation for more effective service in a field where there is so much to learn and to give. The monetary rewards of the future will be decided by the value of the service as determined by the economic factors of the future rather than those of the past. They will be in line with the future cost of living, whether inflation or deflation supervenes. These are the reasons one can say that medical education is the doctor's best investment.

II

Mrs. Norman H. Baker, chairman of the Health and Summer Round-up of the Minnesota Congress of Parents and Teachers, requests the coöperation of physicians and local medical societies in the Summer Round-Up, which is a state-wide effort by the Parent-Teacher Association to encourage examination of younger school children by the family physician. Activities must develop rapidly so that remediable defects can be recognized and corrected during the summer months. The campaign will also stress immunization and vaccination and is especially applicable to children who expect to enter school for the first time this year.

The Committee on Child Health of the State Medical Association, under the chairmanship of Dr. R. L. J. Kennedy, has been actively interested. At a meeting of the Committee on February 28, a resolution was passed for approval by the Council in which it was recommended that, in collaboration with the State Board of Health and the Center for Continuation Study of the University of Minnesota, an institute be organized on the diseases of younger children. Representatives designated by each component society were to be asked to attend this institute. It was also recommended that each representative so designated by the local medical society continue to act as a liaison officer with the Parent-Teacher Association of the area covered by the society.

This resolution has been approved by the Council and plans have been made for instruction at the Center for Continuation Study from June 8 to 10. It is anticipated that a well-organized effort of this kind will expand the activities of the Summer Round-Up on a sound basis. The work requires coöperation with all local organizations interested and active in child health. The interest and services of physicians are essential to the success of the project, and plans of procedure must be worked out in each locality by representatives of the local medical societies and the Parent-Teacher Associations.



President, Minnesota State Medical Association

EDITORIAL

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BUSINESS MANAGER

J. R. BRUCE

Volume 25 JUNE, 1942 Number 6

STATE MEDICAL MEETING

THE eighty-ninth annual meeting of the Min-
nesota State Medical Association will be held
at Duluth the last of this month in spite of Hitler
and Nazidom. The program, which promises to
live up to the high standard set by our Associa-
tion in past year, appears in this issue of the
JOURNAL.

It will be seen that the scientific program is to
be run in two sections held simultaneously
throughout the three days of the convention.
With both sections held in the Armory, one can
easily step from one to the other.

Round-table discussions, which have become
popular and seem to aid rather than inhibit diges-
tion, will be extensively used at the coming
meeting. Some eleven Round Tables, each seat-
ing twenty-five guests, will be conducted both
Tuesday and Wednesday noon.

Minnesota talent will be supplemented by visi-
tors brought through the courtesy of the Min-
nesota Radiological Society, the Northern Min-
nesota Medical Association, the Northwestern
Pediatric Society and the Minnesota Academy of
Ophthalmology and Otolaryngology. The last
mentioned society will furnish much of the pro-
gram the last day of the convention with clinics
at Saint Luke's Hospital in the morning and an
open meeting at the Armory in the afternoon.

The hospitality of Duluth is well known—the
climate, too. While the rest of the state may be
sweltering at the time of the meeting, Duluth is
not likely to be. The weather for the golf tourna-
ment the Sunday preceding the session can
almost be guaranteed to be perfect, as far as
temperature is concerned. A trip to Duluth can
easily combine duty and pleasure.

INDUSTRIAL HYGIENE

THE winning of the war will depend on pro-
duction as well as the performance of our
armed forces. For full production, the health of
the workers is an important consideration. As
Dr. Bristol brought out in his address before the
Hennepin County Medical Society,* the indus-
trial physician, whether full time or a general
practitioner on part time, plays an important
part in maintaining the worker on his job.

Not so long ago a physician who took an in-
dustrial job was looked down upon if not faced
with ostracism by his medical confreres. Indus-
trial work is approaching a specialty of phy-
sicians trained to do this work on a full time
basis for the larger corporations. However, in-
asmuch as some 85 per cent of industry is car-
ried on by comparatively small organizations, the
general practitioner will be called upon to supply

*See page 441.

this type of medical service for a long time to come. The general practitioner should, therefore, inform himself as to the functions of an industrial physician.

The male employe loses on the average some eight days a year, the female employe some twelve days, on account of physical disability. The greatest cause of disability is respiratory infection. Efforts have been made to reduce the incidence of colds by means of vaccines given hypodermically or orally without conclusive results. There is no better way of preventing the spread of respiratory infection than by exclusion of the infected employe from work during the acute stage. Those prone to repeated colds can easily be discovered and referred to specialists for possible remedial care.

There has been some misunderstanding as to the proper function of the industrial physician. In part at least he acts in an advisory capacity to the employe, referring him to his own physician for medical care. The closest coöperation should exist between the industrial physician and the rest of the profession as well as public health authorities. In the same way the general practitioner as well as the specialist can render a distinct service in the promotion of industrial health through the advice he gives his patient.

The prevention of venereal disease among industrial workers becomes of additional importance in localities in the vicinity of new industrial plants and army encampments. Army regulations serve pretty well to control infection of enlisted personnel. Physicians have a duty to perform in uncovering sources of infection in coöperation with police and local health authorities.

Education plays an important part in the matter of industrial hygiene. Millions of citizens are taking first aid and nutrition courses. While these courses will not make physicians or dietitians of the class members they are of value. Some will be better prepared to meet an emergency and all should learn the essentials in diet and that wholesale taking of vitamin preparations is an unnecessary expense. We do not feel that we can be rightfully accused of conceit, when we suggest that industry instead of placing reliance in providing vitamin tablets for its employes irrespective of need, would obtain a greater return from an equal expenditure by employing the services of a physician.

MEDICAL ENLISTMENT

UNCLE Sam needs more doctors and dentists and needs them now. In order to expedite the voluntary enlisting of members of these professional groups a medical recruiting office was established in the latter part of May at 496 Lowry Annex, Saint Paul, with Major C. A. Wood representing the Surgeon General and Major B. Groebner representing the Adjutant General.

A certain number of Minnesota physicians not now in service have signified their willingness to serve their country in its hour of need. Without doubt many others will make the decision to join when they realize the need.

All a medical man under the age of forty-five need do now is to call on Majors Groebner and Wood, fill out an application form and proceed to Fort Snelling for his physical examination. In fact, he may be sworn in by his new local Board at once. The usual waiting period of two or three months has thus been cut to two or three days. A period of two or four weeks is allowed, if needed, after being sworn in for settling of affairs at home.

This new Board has authority to dispense commissions—first lieutenantcies to those under thirty-seven and captaincies to those thirty-seven to forty-five. Recommendations for higher rank have to be sent in to the Surgeon General. This applies to physicians and dentists alike.

Until recently doctors married and with dependents have been put in Class III A. The latest ruling is that the pay of a first lieutenant is deemed sufficient for dependents and all doctors in good physical condition and under the age of forty-five belong in Class I A. When their draft numbers are called they will be drafted to serve a period of three months as privates and then possibly will be commissioned as lieutenants.

Uncle Sam has to have more medical men. During the last war about a third of the practitioners enlisted. The number of Minnesota physicians so far enlisted is indicated in the roster which appeared in MINNESOTA MEDICINE for May. The number hasn't nearly approached a third of the membership. Is the younger generation of medical men less patriotic than their fathers?

The determination of the personnel of the profession available for service and those essential

in their civilian locations has been left to the State and County Procurement and Assignment committees of the organized profession. The names of those approved are available to this new Board. It is to be earnestly hoped that enough medical men will enlist voluntarily to obviate the necessity of regimentation of the profession by the government, which could easily lead to state medicine following the present emergency.

MEEKER COUNTY TUBERCULOSIS PROGRAM

WHEN Dr. Chester H. Stewart, now head of the department of pediatrics of the University of Louisiana, was a member of the Council of the Minnesota State Medical Association for the sixth district, back in 1939, he made the suggestion that launched a program of tuberculosis control in Minnesota, which appears to be unique among the states.

As a result of Dr. Stewart's appeal to the Council, funds were appropriated by the State Medical Association and the Committee on Tuberculosis was instructed to set up plans. The plans took shape as a two-fold program.

First, the Meeker County experiment, recently described in *Collier's*, was launched. This experiment calls for the testing by use of the Mantoux tuberculin skin test of every resident in the county. Reactors are x-rayed without charge and active cases found are segregated and treated. The plan follows as nearly as possible the program of the veterinarians who began their county-wide testing of cattle for tuberculosis in Meeker County in 1923.

Second, definite standards for accreditation of each county for a measure of tuberculosis control were established and two counties, Lincoln in December, 1941, and Olmsted on May 22 this year, have already been awarded certificates of accreditation in accordance with the standards. This part of the program also follows the plan of the veterinarians whose accreditation program resulted in 1940 with the final accreditation of every county in the entire United States for control of tuberculous infection among cattle. The standards set by the committee were: (1) an average death rate on a five-year basis of 10 per 100,000 population or less; and (2) an infection rate among all high school seniors, as measured by the tuberculin test, of 15 per cent or less.

Dr. Stewart sat in on the preliminary meetings

of the committee in which the program took shape but left Minnesota to take over his present post at the University of Louisiana in New Orleans before the work actually got under way.

At the invitation of the committee he came back to Minnesota last month, however, to give the principal address at the accreditation ceremonies for Olmsted County which took place at the Rochester High School auditorium. On the same program were Mayor Paul Grassle, of Rochester, Superintendent Irvin E. Rosa of the Rochester public schools, Drs. S. E. Slayer, superintendent of Southwestern Sanitarium, E. A. Meyerding, secretary of the Minnesota Public Health Association, A. J. Chesley, secretary and executive officer of the State Board of Health, Donald C. Balfour, director of the Mayo Foundation, C. F. Schlotthauer of the Rochester Parent-Teacher Association and J. A. Myers, chairman of the State Committee on Tuberculosis.

Dr. H. Z. Giffin, president of the Minnesota State Medical Association, presented the certificate on behalf of the Association and of the State Board of Health which is coöperating in the undertaking. The certificate was signed by Dr. Giffin, Dr. Chesley and Governor Stassen.

Recent figures from Meeker County indicate that somewhat more than one-third of the population of the county has already been tested and eight cases of active disease have been discovered and are under treatment. The physicians of the county are carrying on the program without remuneration, but x-ray films have been provided by the State Medical Association.

It is understood that the next county to receive the certificate of accreditation will be Murray County with the ceremony likely to be held at the time of the Murray County fair. Stevens County is the fourth county to qualify for the award so far as death rates are concerned. Testing of senior students of the county is now under way there.

It would seem that the Meeker County experiment will prove the practicability of an ambitious method for detecting every active case of tuberculosis in each county and the eventual elimination of the disease from every county and state in the union. The task does not seem insurmountable.

Plan to attend the meeting in Duluth.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

Minnesota State Medical Association

George Earl, M.D., Chairman

WAR AND STATE MEDICINE

It is inevitable that a large number of physicians, especially younger physicians, will be in the armed services in the next few years.

That means, obviously, that the men who remain will be fewer, older and much busier than ever before.

It does not mean, however, that these same older, busier men may forget all about their economic and social responsibilities on the theory that they serve enough who diligently practice medicine.

The fact is that those who remain in civilian life must be doubly vigilant to see that, in spite of the burdens and demands of the times, the men and women at home do not suffer for lack of medical care.

Government has extraordinary powers these days and neither legislators nor people will patiently endure maldistribution of services, even when the situation is caused by wartime demands, if they can correct the matter by taking over medical services.

Physicians who cherish the rights and privileges of private practice and who see in state medicine a first-rate menace to standards and progress, will redouble their efforts to avoid any cause for government action.

It is clear to all students of the situation that, right or wrong, the burden of proof is on the medical profession. If the doctors come forward quickly and in sufficient numbers to fill the needs of the armed forces and if, at the same time, the older men are superhumanly watchful to see that all actually essential civilian needs are met, then it will be difficult even for a government disposed toward subsidies to take any radical action toward the establishment of government medicine.

MR. ALTMAYER RESPONDS

Observers in Washington do not believe that the plan for expanding functions of the Social Security system to include hospitalization and other benefits has been dropped.

It is stated in some quarters, on the contrary, that the legislation sketched by the Social Security board will be introduced as soon as the general revenue bill is adopted.

The chief purpose will be to impose an additional pay-roll tax which will raise two billion dollars in increased revenue. Hospitalization is more than likely to be included among the increased benefits which are to be offered as justification for the heavy rise in the tax.

Hospital executives and hospital service plan officials are not the only people who will be vitally interested in the outcome of this new method of fund raising.

See as First Step

Medical men also see in the plan a first, easy stage toward new billions to be raised on the still more attractive justification of allowances toward medical care. Also they see, with the hospital executives, a serious threat to the voluntary hospital system and particularly the thriving new plan of group hospital insurance.

Observations by Dr. S. S. Goldwater, president of Associated Hospital Service, New York City, on the new proposal of the Social Security Board were reprinted in these columns last month. Following are excerpts from a reply from Mr. A. J. Altmeyer, chairman of the Social Security Board, which appeared in a communication to the *New York Times*:

Inclined to Limited Plan

"Our studies have recognized from the start," says Mr. Altmeyer, "that hospitalization payments could take different forms but have not led to any final conclusions. At least two main types have been considered. The social insurance system could guarantee to insured workers and their dependents whatever hospi-

tal service may be necessary and pay the hospitals a fair reimbursement from insurance funds. Under a more limited plan the insurance system would pay the insured workers and their dependents a fixed cash benefit in partial reimbursement for each day of hospital care received up to a specified maximum in any one year. . . .

"The Social Security board has been inclined to recommend a plan of the second type. The benefit might be a minimum of \$3.00 a day or some other appropriate amount, in partial reimbursement for hospital service. For this program, as for social security programs generally, the objective would be to provide a minimum basic protection which many people would wish to supplement through other measures.

"The beneficiary, of course, might have the right to assign the benefit to the hospital which furnished the service so that the insurance system would make the payment directly to the hospital; or he might even assign his benefit to a voluntary hospital insurance plan to which he is a contributor. . . .

Would Cover Dependents

"It is quite true that the board has considered the level of benefits which should be provided by a contribution of one-half of one per cent by employer and worker. It should be pointed out, however, that the benefits considered would cover dependents of insured workers as well as the workers themselves and also retired workers and their dependents and survivors of insured workers who had died. This makes the protection much broader than is commonly found under similar programs. . . .

"As I have pointed out, social insurance benefits in general are designed to provide the worker only a basic minimum compensation for a risk . . . of course there is nothing final about the \$3.00 which has been mentioned. . . .

"It was recommended as an alternative recently in the *New York Times* that the 'Social Security Board could hardly do better than to permit the (American Hospital) association to extend its New York Community Ward Plan throughout the country leaving the local hospitals to make proper adjustments.'

"However, as you are no doubt well aware, the voluntary hospital insurance systems have recruited their subscribers in the main from economic groups well above the neediest. If these neediest groups are to be reached and served by any such plans it would probably be essential to follow the *Times'* other suggestion that 'private enterprise should be given the opportunity with federal financial aid to carry on the work the President has in mind.'

"Less Cumbersome"

"A subsidized plan such as this seems to suggest would probably prove less satisfactory to all concerned, less adequate and more cumbersome than the sort of plan the Board suggests which contemplates that the federal government will provide minimum protection, only, to the mass of wage earners and leave the remainder for the individual and for private asso-

ciations to cover in any way and to any extent that seems desirable and feasible.

"It is our reasoned conviction that such a program would not interfere with the development of voluntary plans but would result, as in the case of old age and survivors' insurance, in stimulating greater efforts to meet the remaining needs."

INTERPROFESSIONAL MEETING

Physicians, dentists, pharmacists from ten nearby counties met at St. Cloud under auspices of the Committee on Interprofessional Relations April 23 to talk over mutual problems and interests.

Nursing problems bulked large in the discussions and papers.

Dr. J. F. Du Bois, who opened the program, called upon all of the professions represented there to present an allied front.

"In Washington," he said, "there is a complete set-up for socialized medicine. There will be many doctors who, at the end of the war, will have no particular place to go and who can be readily shoved into government positions.

"We must be militant and let the public know that the ones to suffer from state medicine will be the public.

"Legislation must be watched. We must get each other's point of view and we must always remember that once the public is aroused, legislators have to act whether for good or evil. Anything can happen at the opportune time—and the opportune time may well be at the end of the present conflict."

Mr. J. B. Slocumb, secretary of the Minnesota State Pharmaceutical Association, appealed to the doctors to be ready to prescribe substitute drugs if the preparations originally ordered are not available.

Stocks of chemicals are becoming scarce in many instances; in others they are impossible to secure entirely, he said. Substitutes will have to be used.

Miss Louise Newcombe, president of the Minnesota State Board of Nurses' Examiners, gave a comprehensive explanation of the nurses' shortage which exists everywhere at the present time.

It is true, she said, that student enrollment has increased 22 per cent since January, 1927. Also graduate registration has increased in the same period by 47.3 per cent. Public health nursing has grown by a total of 4,000 new nurses and industrial nursing has increased by 1,000. But

there have been many inroads. Airlines and passenger trains have taken a considerable number. Hospital regulations providing for eight-hour duty have decreased the number of nurses available. Lastly and most important of all are the demands of the armed services, the Red Cross and government services.

"The army requires six nurses for each 1,000 men, the Navy three," Miss Newcombe said. "The Army Nurses Corps needs 10,000 additional nurses by July 1.

"To supply this need and offset the shortage, increased enrollment of students is not enough. Refresher courses are being given to retired nurses and ward aides, Red Cross volunteer aides and auxiliary hospital workers are being trained. In Minneapolis a nine months' course for practical nurses is offered by Vocational and Franklin schools. About one hundred are graduated yearly. Since July, 1941, the Federal government has allocated \$1,800,000 for nursing education."

Joint committees of physicians and nurses are studying the nursing situation in Minnesota in an attempt to meet the war demand, to maintain standards and to provide for needs of rural hospitals and rural communities.

NURSES NEEDED

Attention of all physicians has been called by Miss Laura A. Draper, chairman of the Student Nurses' Recruitment Committee, to the great need for well-qualified girls in the schools of nursing.

Before the war began the supply of nurses about met the demand, according to Miss Draper. As soon as war was declared the need increased sharply and it will continue to do so in direct ratio to the increase in the armed forces.

In Minnesota several schools have reported fewer than the expected number of applicants for the spring classes and a number of directors already state that applications for fall classes are falling short of the number customary at this time of year. In other parts of the country, furthermore, the need seems to be even more acute than it is here.

Many schools are expanding their facilities so as to be able to train larger classes and, though admissions may be closed in some individual schools, in general applicants do not meet the need.

Girls who enter nursing should be between eighteen and thirty years old. They should have good health and should have graduated in the

upper one-third of their high school class or have maintained a "C" average in college. The cost is generally between \$200 and \$300 for the three years' training.

Physicians are often consulted about nursing as a profession and about selection of training schools. It is the hope of the committee that they will make a special effort in view of the need, to interest girls of high caliber in the nursing profession.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. Du Bois, M.D., Secretary

Roseau District Court Grants Permanent Injunction Against Unlicensed Chiropractor

Re: State of Minnesota vs. K. H. Luross, also known as Knute H. Luross

In a case of far reaching importance, and one that establishes a precedent in the State of Minnesota, the Hon. Oscar R. Knutson, Judge of the District Court of Roseau County, Minnesota, made an order on April 9, 1942, granting a writ of injunction permanently restraining and enjoining the defendant Knut H. Luross

"from practicing healing in the State of Minnesota, including the practice of Chiropractic, until such time as he shall have been duly and regularly licensed to practice said healing in accordance with the laws of the State of Minnesota and until he shall have procured a certificate of registration in the basic sciences, and from advertising or in any way representing to the public that he is qualified or authorized to practice healing or to practice Chiropractic as defined by the laws of this State or from diagnosing, or attempting to diagnose, or treating, or attempting to treat, any of the diseases, maladies, afflictions or ailments of the human body."

On April 17, 1942, judgment was entered pursuant to the Court's order.

The action was brought in the name of the State of Minnesota for and in behalf of all the people, by the Attorney General, the Hon. J. A. A. Burnquist, R. F. Merriam, Special Assistant Attorney General representing the Minnesota State Board of Chiropractic Examiners, and Bert Hanson, County Attorney of Roseau County. The State alleged that the defendant was engaging in the practice of healing as a chiropractor in Roseau, Minnesota, without a basic science certificate and without a chiropractic license. The State also alleged that on March 12, 1936, the defendant had been convicted in the District Court of Polk County, of practicing healing without a basic science certificate and had been sentenced to serve a term of six months in the Polk County jail, the sentence being stayed and the defendant placed on probation; that thereafter the defendant moved from Fosston, Minnesota, to Roseau, where he continued to practice as a chiropractor, resulting in his arrest in the fall of 1941, for practicing healing contrary to law. The Court in its conclusions of law found that it is unlawful to practice healing in the State of Minnesota without first obtaining a certificate of registration in the basic sciences; that the defendant was practicing the art of healing in the

State of Minnesota, and that the defendant has no such certificate of registration in the basic sciences. The Court also found that to so practice in violation of law constituted a public nuisance and that the State of Minnesota was entitled to a permanent writ of injunction forever restraining and enjoining the defendant from engaging in such practice, in any manner, until he was properly licensed.

Judge Knutson, in a memorandum attached to his order, stated:

"By enacting laws requiring such license as a prerequisite to practicing the art of healing our Legislature has established the public policy that it is injurious to health to permit anyone to practice without a license. If these laws are to have any effect, anyone who has not shown himself qualified by passing the required examination must be prevented from so practicing. How else can this be done than by an injunction? That the penal provisions of the law are ineffective has been effectively demonstrated by the defendant himself. He was arrested, tried and convicted of violating this law on the twelfth day of March, 1936. He was sentenced by the Court to be confined in the County Jail for six months and the sentence was suspended and he was placed on probation. Thereafter he again engaged in the practice of the art of healing at a different location. He was again arrested in the fall of 1941 and successfully evaded trial at the Fall Term of Court in Roseau County. . . Our legislature has enacted laws intended for the protection of the public in prescribing certain preliminary tests of qualification before authorizing anyone to engage in the practice of the art of healing. The public is entitled to be protected from one who has not shown himself to be qualified, and until he has passed the examination required by law and procured his license to engage in the practice of the art of healing, it must be presumed that he is unqualified and unskilled and a menace to public health and safety."

Notwithstanding the fact that Judge Knutson's order establishes a precedent in the State of Minnesota, it would seem that the Court's order is in accordance with the facts and based on sound reasoning. It has been said that the defendant will take an appeal to the Supreme Court of Minnesota. We hope that he does so for it will settle a much discussed question in Minnesota, and there is every reason to believe that Judge Knutson's order will be sustained.

FLUORINE ACCUMULATES LIKE LEAD IN HUMAN BODY

Fluorine accumulates like lead in the human body when too much is absorbed, according to Dr. Willard Machle and E. J. Largent of the University of Cincinnati.

This report was made to the meeting of the American Association of Industrial Physicians and Surgeons and the American Industrial Hygiene Association in Cincinnati.

When increased quantities of various fluorides were added to the diet there was increased absorption and retention. In every case about half the amount of fluorine was absorbed and stored, regardless of how much was taken in. Normally about one milligram of fluorides is absorbed by a person on normal diet. This amount is passed off, but if more than two milligrams are taken in per day, the chemical begins to accumulate, particularly in the bones.

Commonest form of fluorine poisoning is mottled enamel of the teeth which occurs where the element is present in drinking water.—*Science News Letter*, April 25, 1942.

I'M IN THE NAVY NOW

LIEUT. COMDR. EDWARD DYER ANDERSON,

MC-V(S), USNR

Minneapolis, Minnesota

I have been in the Navy for about two months and there have been so many new experiences and so many adjustments to make that I think it may be of some interest to those of you who are going into Medical Corps of the Navy to hear of some of the things you are going to meet and the reactions you are likely to have.

In the first place there is the tremendous decision you have or are making in regard to whether you should leave your practice at home and join the Navy. If you have made the decision and have sent in your papers, you then have that long interval of several weeks during which you feel suspended in mid-air while you wait to find out whether you are accepted or not. During this time you find it extremely difficult to carry on your regular work and you stay awake nights wondering what you will do with your family, your home and your practice and how you will meet your insurance payments. Then you can't help but wonder what will happen to you and your family after the war is over. You feel, and undoubtedly correctly so, that if the war lasts two or three years, your practice will be gone and you will have to start all over again.

Finally your commission and your orders arrive and then you have three or four days of hectic existence. There are bills to be paid, final arrangements to be made and friends and relatives to say goodbye to. The result of this six to eight weeks before you go, is that you leave tired, but keyed up, tremendously excited and pretty much scared. You have a feeling of wanting to help your country and all it stands for, and you want to do the best possible job you can. You also feel quite important. You are leaving home at considerable sacrifice, financially as well as personally. Your friends and patients have all rallied around and told you how much they will miss you. Now the Navy has called you and you can't help but feel that it is because they have a particular need for you, personally. You are scared, because you have always heard or thought that the men you will meet and who will be your superior officers, will be hard-boiled old sea dogs, who are arbitrary, unreasonable and ready to bawl you out for every deviation from the rules, regulations and customs of Naval Regime.

The result of all this is that you arrive at your assigned station with a feeling which is a mixture of apprehension, excitement and resolve to jump right in and do a grand job of practicing medicine. You feel as if you could do an unlimited amount of work and you are sure that the Navy can hardly hold out until you get there to do it.

And now the surprises begin to come, one after another. The first one you meet is that you are going to be associated with a grand group of men. The regular Navy doctors, including your superior officers, are

doctors just like yourself and your doctor friends at home. They treat you with courtesy, kindness and helpfulness. They make every effort to make you feel at ease and to help you in any way they can. In other words, they are gentlemen, and they treat you as one. I am convinced that one of the traditions of the Navy is that they assume that every one from the apprentice seamen up, is a gentleman until he proves himself otherwise. Also you find that the majority of the doctors now in the Navy are reserve officers like yourself, who either have or are going through the same experiences that you are and it gives you a bond that draws you closer together.

For the first few days you are busy running around filling out papers, getting on the payroll, ordering new uniforms, arranging to get your allowance for travel and uniforms, and finding a place to live. The excitement of being in a new place, the large number of men in uniform, the big crowds, the saluting, the pride of walking around in your new uniform all tend to keep you keyed up to a new high.

And then the bubble breaks with a bang. You are raring to go, and do the best work you ever did. The government wanted you and brought you here to use your particular talents (and in your own mind you are convinced they are considerable). And all of a sudden you find yourself with nothing to do, no particular place to sit, no office of your own, and you sort of stand around feeling like a lost soul wondering why you left the busy practice where you were wanted and appreciated, to come to a place where they don't seem to realize how really good you are, and where they don't seem to need you. On top of this, by the time the original thrill is gone, you are lonesome for your family, you can't find a decent place to live and altogether you feel lower than a snake. This state of mind lasts for a few days and then you find that gradually the clouds lift. They do find a place for you, and you have a job to do. It may, and probably is, entirely different from the type of work you did at home. Nevertheless you are surprised to find that you enjoy it and that it is good for you to do something different, and you are pleased to find that you can do it. You are beginning to make some friends among the other men, and you feel more and more at home. Inside of a couple of weeks you begin to feel like an old-timer, and you can answer questions and help the new man that comes in. You are still frightfully green, but nevertheless you are beginning to fit into your niche. And then you begin to realize that with an organization as big as the Navy the only way it could work efficiently would be to have each man a part of a large pattern. The Navy can't be run on the basis of finding a place that would just suit you. They put you wherever they can use you, and expect that you will do your best job, whatever it may be. The surprising thing is that after a while you not only don't resent being just a cog in a vast wheel, but you actually enjoy it, and feel a great pride in being given the opportunity to help in keeping the wheel turning. As each day goes on you find yourself more and more proud of the Navy. One might say that although I may feel this way now, that six months

or a year or five years from now, I may change my mind. Possibly so, but I don't believe it. I am firmly convinced that one's respect and pride in the Navy will continue to grow, as its personnel, because of tradition, training and character, are bound to make one proud to be one of them. I'm in the Navy now and I'm proud of it.

Naval Dispensary,
Navy Bldg., Washington, D. C.

NOTE: The opinions expressed in this article are the private ones of the author and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

MARINE CORPS ENLISTMENT

Requirements for enlistment in the United States Marine Corps have been widened so that men previously ineligible to enlist can now qualify, according to Capt. W. L. Harding of the Minneapolis recruiting office, in charge of this district.

Especially qualified men between the ages of 30 and 33, and men varying not more than 1 inch from the present height requirements of 5 feet, 4 inches, to 6 feet, 2 inches will be considered for enlistment. Minimum age for enlistment is seventeen.

In addition, applicants wishing to enlist in the Marine Corps can now do so *immediately*, without any waiting period. They may still enlist even though they have been called for induction by the army.

Applicants may enlist in either the regular Marine Corps or the Marine Corps reserve. Enlistment in the regulars is for four years; in the reserves, for the duration of the war. Choice is up to the applicant, and both branches provide identical pay, training, assignment to duty and chances for promotion.

Further information may be obtained at the Marine Corps recruiting offices in room 172, Federal Office building, Minneapolis; room 113, Old Postoffice Building, Saint Paul; 6 Robert Street, Fargo, N. D., and in the postoffice buildings in Duluth and Albert Lea, Minn.; Minot, Bismarck and Grand Forks, N. D., and Aberdeen, Sioux Falls and Rapid City, S. D.

TREATMENT OF CARRIERS MAY PREVENT DYSENTERY

Dysentery outbreaks in Army camps and in civilian institutions such as hospitals and prisons may be prevented by one of the newer sulfa drugs, sulfaguanidine, Dr. Lowell A. Rantz and Dr. William M. M. Kirby, of San Francisco, suggest (*Journal, American Medical Association*, April 11).

In nine out of eleven patients, ten of whom were regarded as healthy carriers of dysentery, sulfaguanidine treatment banished the dysentery germs, the San Francisco doctors report. As a result, the patients were no longer disease spreaders.

The healthy carrier of dysentery germs is probably the source of most cases of sporadic infection and if working in the kitchen of a camp or hospital may be responsible for serious outbreaks of the disease. If the sulfaguanidine treatment lives up to its present promise it should be a valuable aid, the physicians state, to the control of the spread of bacillary dysentery.—*Science News Letter*, April 18, 1942.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

J. L. McLeod, Grand Rapids, Chairman

H. B. Allen, Austin
L. S. Arling, Minneapolis
G. L. Berdez, Duluth
F. J. Elias, Duluth

L. W. Foker, Minneapolis
T. A. Lowe, South Saint Paul
L. G. Rigler, Minneapolis
E. E. Scott, Saint Paul

S. E. Sweitzer, Minneapolis
D. D. Turnacliiff, Minneapolis
A. E. Wilcox, Minneapolis
H. G. Wood, Rochester

OCCUPATIONAL DERMATOSES

There are some important considerations in the treatment of acute dermatitis which should be brought to the attention of all physicians who see and treat industrial dermatoses. Loss of valuable time and future effectiveness of the individual may be prevented by following a few simple principles.

It must be emphasized that many cases of acute dermatitis do not require a specific treatment and if the patient is removed from the irritant and the treatment is of a mild soothing type and not irritating in itself the condition will be healed in about two weeks' time. Therefore, a specific treatment is not as important as management.

Treatment Should Be Mild

A dermatitis which does not respond to a given treatment and is steadily becoming worse should always be treated with a milder form of treatment and not with a stronger treatment. In addition to damage of the involved part, strong treatment may also disseminate the condition and produce sensitivity of distant parts. Whenever a dermatitis does not respond to a given treatment, the treatment and not the kind of dermatitis should be searchingly examined as the cause of the spreading.

Allergic Patients Sensitive to Chemicals

Patients who possess allergies are notoriously sensitive to chemical applications and may acquire sensitivities to drugs after they have been applied for a short while. This is strikingly demonstrated in the case of infantile eczema where the initial response to an ointment may be good only to see exacerbation with continued use and decided aggravation with increased strength. If then a change is made to a much milder preparation, healing often takes place.

I believe that all physicians should be warned that industrial dermatoses should be treated only with mild astringent solutions or very sim-

ple zinc pastes and that the source of irritation should be removed if possible and that the danger of producing general sensitivity should never be lost sight of.

D. D. TURNACLIFF, M.D.

WORKERS' HEALTH AND WAR PRODUCTION

Health programs in industry definitely reduce sickness and absenteeism, according to a résumé of reports from 234 companies made by the National Association of Manufacturers last year. An average reduction of 29.7 per cent in absenteeism was reported as a result of industrial health services. The saving exceeds the cost of health services to the employer.

"The estimated cost of a health program for a 500 man plant is \$13.46 per employe per year, or a total of \$6,730," the association points out in this report. "An estimate of savings and losses to industry in proportion to the extent of medical programs, made by the U. S. Public Health Service, revealed one and one-half times the average daily wage as the potential loss to the employer on account of absenteeism. Reductions of 47 per cent in accidents and occupational diseases and 28 per cent in absences, as reported for the average 500 man plant in the National Association of Manufacturers' study, would, on this basis, result in a saving to the company of \$12,341 per year, assuming an average daily wage of \$5. Deduction of \$6,730 for medical costs leaves a net saving to the company of \$5,611 per year while the saving in wages to the employes amounts to \$6,300."

The conclusions to be drawn in wartime from these studies are obvious.

Could Build Battle Ships

"Even if only 10 per cent reduction in days lost annually from illness and injury in industry were brought about" said a recent editorial in

(Continued on Page 495)

MINNESOTA STATE MEDICAL ASSOCIATION

EIGHTY-NINTH ANNUAL SESSION

June 29, 30 and July 1, 1942

The Armory, Duluth, Minnesota

Registration will open at the Armory, Monday, June 29, 8:00 A.M. Advance registration may be made at the Hotel Duluth on Sunday, June 28.

Scientific sessions will be held in two sections simultaneously at the Armory.

Luncheons.—Twenty-two Round-table Discussion Luncheons have been arranged for Tuesday and Wednesday, June 30 and July 1, at the Hotel Duluth. Tickets must be purchased in advance for these luncheons. Lists of subjects and leaders are printed in this program and on reservation cards mailed with the program. Attendance at each luncheon is limited to 25 and late-comers will be accommodated according to their choice if limits have not already been reached. Tickets 75 cents.

Annual Banquet.—The annual dinner for members, guests and their wives, will be held at the Hotel Duluth, Tuesday evening, June 30, at 6:30 p.m. Anton J. Carlson, Chicago, Professor of Physiology, University of Chicago, and Colonel F. W. Rankin, Lexington, Kentucky, president of the American Medical Association, will be banquet speakers. Tickets \$1.50.

Night in Bohemia.—All convention visitors and their wives will be guests of the Minnesota State Medical Association and the St. Louis County Medical Society at an informal party to be held Monday night, June 29, at the Northland Country Club. There will be dancing, Bohemian music, and entertainment.

Guest Speakers.—In accordance with an established precedent, several societies are sponsoring visiting speakers for this meeting. We are indebted this year to the following societies:

The Minnesota Radiological Society—Speaker, A. C. Christie, Washington, D. C., who will deliver the annual Russell D. Carman Lecture in radiology.

The Northern Minnesota Medical Association—Speaker, A. J. Carlson, Chicago.

The Northwest Pediatrics Society—Speaker, A. L. Hoyne, Chicago.

The Minnesota Academy of Ophthalmology and Otolaryngology—Speakers, F. H. Haessler, Milwaukee, and J. R. Lindsay, Chicago.

Minnesota Academy of Ophthalmology and Otolaryngology.—The Academy will hold an open meeting in connection with the convention on Wednesday, July 1, 2 to 4 p.m., in the Duluth room at the Armory. Clinics in eye, ear, nose and throat have also been arranged at St. Luke's Hospital, Wednesday morning, from 8:30 to 10:30 a.m. A luncheon sponsored by the Academy will be held Wednesday noon at 12:30 at the Kitchi Gammi Club. Tickets \$1.00. Clinics, luncheon and afternoon meeting are open to all convention visitors.

Nutrition Conference.—A special conference on Nutrition has been arranged for Tuesday afternoon, June 30, 2 to 5 p.m., in the Duluth room. Members and others especially interested in nutrition are invited to attend.

Industrial Health and Safety Conference.—A conference on Industrial Health and Safety will conclude

the regular convention program, Wednesday afternoon, July 1, 2 to 4 p.m. Plant superintendents and safety engineers from Duluth industries are invited to attend this session.

Medal.—The Southern Minnesota Medical Association will present its annual medal for the best scientific exhibit presented by an individual physician at this meeting. Presentation will be made at the banquet Tuesday evening, June 30, at the Hotel Duluth.

Fifty Club.—This year the Council of the Minnesota State Medical Association takes pleasure in the inauguration of Minnesota's "Fifty Club," made up of members who have been in practice in Minnesota for fifty years or more. Presentation of appropriate lapel buttons to those who reach a half century of service will be a feature of all future annual banquets of the Association. The first will take place Tuesday night, June 30, in connection with the eighty-ninth banquet at the Hotel Duluth. Fifty-year candidates will be honor guests of the Association on this occasion.

Medical Women's Luncheon.—A luncheon meeting for all women physicians will be held at the Hotel Duluth, Monday, June 29, at 12:15 p.m. Reservations for this luncheon should be made direct to Dr. Selma C. Mueller, president, Minnesota Branch, American Medical Women's Association, 915 Medical Arts Building, Duluth.

All-Alumni Get-together.—University of Minnesota Alumni will hold their annual reunion at a cocktail hour to be held at 5:30 p.m., Tuesday, June 30, in the Arrowhead Room, Hotel Duluth, before the Annual Banquet. All University alumni are invited to attend. Russell J. Moe of Duluth is chairman of arrangements.

Reunion, Class 1902.—The Class of 1902 will hold a fortieth anniversary dinner Monday, June 29, at 6 p.m. at the Hotel Duluth. Reservations should be made with E. A. Meyerding, 11 W. Summit Ave., Saint Paul.

Woman's Auxiliary.—Wives of physicians attending the meeting may secure programs of the business and social sessions of the Woman's Auxiliary at the Women's Registration Desk in the lobby of the Hotel Duluth. All visiting women are cordially invited to attend the special events arranged by hostesses of the St. Louis County Medical Auxiliary. Among these is a tea Monday, 3:30 p.m. at the Duluth Women's Club. The Annual Meeting and Luncheon to be held Tuesday, June 30, at the Northland Country Club, are open to all Auxiliary members. Out-of-town members will be guests of the St. Louis County Medical Auxiliary at a Round-up Breakfast to be held Wednesday, July 1, at 10 a.m. at the Hotel Duluth.

Golf.—The annual Golf Tournament of the Minnesota State Medical Association will be held Sunday, June 28, at 1 p.m. at the Northland Country Club. Attractive prizes have been donated. All medical golfers are urged to enter. Registrations should be made in advance on the enclosed card to C. O. Kohlbray, Duluth, for the tournament and the buffet dinner at the club at 6 p.m.

BUSINESS PROGRAM

Hotel Duluth

Sunday, June 28

9:00 A.M. CouncilEnglish Room
 10:00 A.M. Reference Committees.....
 Rooms to be assigned
 2:00 P.M. House of Delegates.....Ballroom
 7:30 P.M. House of Delegates.....Ballroom

Monday, June 29

7:30 A.M. CouncilEnglish Room
 12:15 P.M. House of Delegates.....Ballroom

Tuesday, June 30

7:30 A.M. CouncilEnglish Room

Wednesday, July 1

7:30 A.M. Council.....English Room
 10:30 A.M. Installation of Officers.....
 St. Louis Room, Armory

FILMS SHOWN BY TECHNICAL EXHIBITORS

Room B

Monday, Tuesday and Wednesday

Studies in Human Fertility

ORTHO PRODUCTS, INC.

Sex Hormones Physiology, Diagnosis, Therapy

PARKE, DAVIS & COMPANY

Hypodermic Syringes and Needles: Their Care and Function

BECTON, DICKINSON & COMPANY

SCIENTIFIC CINEMA

Room A

Monday, June 29

A.M.
 10:30 Coronary Occlusion-Myocardial Infarction
 A. R. BARNES, Rochester

P.M.
 1:30 Repair of Inguinal Hernia Using Strips of Fascia Lata for Suture Material
 J. C. MASSON, Rochester
 3:30 Electric Shock Therapy
 G. R. KAMMAN, Saint Paul

Tuesday, June 30

A.M.
 10:30 Technique for Intravenous and Intramuscular Administration of Antisyphilitic Remedies
 P. A. O'LEARY, Rochester

P.M.
 1:30 Bone Graft for Non-union of Humerus, Radius, and Ulna
 M. S. HENDERSON, Rochester
 3:30 Technique of Removing Skin for Skin Grafting with the Padget Dermotome
 R. I. STEWART, Minneapolis

Wednesday, July 1

A.M.
 10:30 Recent Traumatic Injuries to the Face
 G. B. NEW and J. B. ERICH, Rochester

P.M.
 1:30 Non-convulsive Electric Shock Therapy in the Treatment of Psychoses Associated with Alcohol, Drug Intoxication and Syphilis
 N. J. BERKOWITZ, Minneapolis

DEMONSTRATIONS

Monday, Tuesday and Wednesday

X-ray Films of the Gastro-intestinal Tract.....

Room C
 Lecture and Interpretations with Lantern Slides
 R. W. MORSE, Minneapolis

First AidRoom D

J. S. LUNDY, Rochester

X-ray Films of the Bones.....Room C

Interesting Lesions
 J. R. McNUTT, Duluth

Obstetrical DemonstrationRoom E

Forceps Delivery
 Breech Delivery
 W. C. KEETTEL, Madison, Wisconsin

X-ray Films of the Chest.....Room C

Interesting Cases
 J. P. MEDELMAN, Saint Paul

GENERAL SESSIONS

Monday, June 29

Section 1

Scientific Committee: A. N. COLLINS, T. R. FRITSCH, W. H. HENGSTLER

A.M.

8:30 Scientific Cinema.....Room B
 ExhibitsArena

9:00 Clinical Pathological Conference.....

St. Louis Room
 Chairman, E. L. TUOHY, Duluth
 A. L. ABRAHAM, Duluth J. R. McNUTT, Duluth
 G. L. BERDEZ, Duluth A. H. WELLS, Duluth

11:00 Present Status of the Hemorrhagic DiseasesSt. Louis Room
 A. J. QUICK, Milwaukee, Associate Professor of Pharmacology, Marquette University School of Medicine

P.M.

1:30 Scientific CinemaRoom B
 ExhibitsArena

2:00 Symposium on Obstetrics..St. Louis Room

Chairman, R. J. MOE, Duluth
 Toxemias of Pregnancy
 J. A. HAUGEN, Minneapolis
 Hemorrhage in Pregnancy
 A. B. HUNT, Rochester
 Use of Sulfonamides in Pregnancy
 M. B. SINYKIN, Minneapolis
 Episiotomy
 J. J. SWENDSON, Saint Paul
 Obstetrics in the Home
 E. S. PALMERTON, Albert Lea
 The Treatment of the Occipitoposterior Position
 W. C. KEETTEL, Madison, Consultant, Wisconsin State Board of Health

4:00 Modern Methods of Control for Measles, Scarlet Fever and Diphtheria.....

St. Louis Room
 A. L. HOYNE, Chicago, Clinical Professor of Pediatrics, University of Chicago Medical School and Professor of Pediatrics (Rush), University of Illinois College of Medicine

P.M.

7:30 "Night in Bohemia".....
Northland Country Club

All convention visitors and their wives will be guests of the Minnesota State Medical Association and the St. Louis County Medical Society at an evening of music, dancing and informal entertainment, Monday, 7:30 p.m., at the Northland Country Club. Songs, dances, refreshments typical of old Bohemia will feature this entertainment. Everybody is invited to attend.

**Monday, June 29
Section II**

Scientific Committee: W. H. AURAND, F. J. HIRSCHBOECK, J. T. PRIESTLEY

A.M.

8:30 Scientific CinemaRoom B
ExhibitsArena

9:00 An Evaluation of the Kenny Technique of Treatment for Poliomyelitis, Lectures and Demonstrations.....Duluth Room
M. E. KNAPP, Minneapolis; J. F. POHL, Minneapolis; LILLIAN A. HUBMER, R.N., Minneapolis

11:00 Motion Pictures of the Kenny Method
Duluth Room
Minneapolis General Hospital
J. F. POHL
The Curative Workshop, Minneapolis
LILLIAN A. HUBMER, R.N.

P.M.

2:00 Symposium on Virus Diseases.....
Duluth Room
Chairman, A. E. CARDLE, Minneapolis
Variations in Phytopathogenic Viruses and Fungi
E. C. STAKMAN, University of Minnesota
Virus Diseases of Animals
W. L. BOYD, University of Minnesota
Virus Diseases of Man
R. G. GREEN, University of Minnesota

7:30 "Night in Bohemia"
(See Section I.)

**Tuesday, June 30
Section I**

Scientific Committee: A. N. COLLINS, T. R. FRITSCH, W. H. HENGSTLER

A.M.

8:30 Scientific CinemaRoom B
ExhibitsArena

9:00 Symposium on Newer Therapeutic MeasuresSt. Louis Room
Chairman, MOSES BARRON, Minneapolis

Use and Abuse of Sulfonamide Compounds
W. W. SPINK, University of Minnesota
A. E. BROWN, Rochester
Use and Abuse of Intravenous Solutions
O. H. WANGENSTEEN, University of Minnesota
H. L. ULRICH, Minneapolis

Use and Abuse of Digitalis
MOSES BARRON, Minneapolis
Discussion

11:00 Some Unknowns in the Pathologic Physiology of Ageing.....St. Louis Room
A. J. CARLSON, Chicago, Professor of Physiology, University of Chicago

12:00 Round-table Luncheons.....Hotel Duluth
Chemotherapy in Treatment of Wounds
W. W. SPINK, University of Minnesota
Colon Surgery
COLONEL F. W. RANKIN, Lexington, Kentucky
Diagnosis and Treatment of Cancer of the Throat
A. C. CHRISTIE, Washington, D. C.
Facts, Fears and Fancies about Our National Malnutrition
A. J. CARLSON, Chicago
Laryngotracheo Bronchitis
P. H. HOLINGER, Chicago
Management of Ulcers
O. H. WANGENSTEEN, University of Minnesota
Proctological Problems
L. A. BUE, Rochester
Treatment of Prolonged Labor
W. C. KEETTEL, Madison, Wisconsin
Urinary Infections
P. F. DONOHUE, Saint Paul
Use of Newer Insulins
MOSES BARRON, Minneapolis
Use of Sulfa Compounds in Dermatology
F. T. BECKER, Duluth

P.M.

2:00 Symposium on Anesthesia...St. Louis Room
Chairman, G. N. RUHBERG, Saint Paul

Neurological Complications Associated with Spinal Anesthesia
E. M. HAMMES, Saint Paul
Spinal Anesthesia: General Principles
R. T. KNIGHT, Minneapolis
Newer Trends in Intravenous Anesthesia
J. S. LUNDY, Rochester

3:00 Esophageal Diseases.....St. Louis Room
P. H. HOLINGER, Chicago

4:00 Russell D. Carman Memorial Lecture
Diagnosis and Treatment of BronchiectasisSt. Louis Room
A. C. CHRISTIE, Washington, D. C., Professor of Clinical Radiology, Georgetown University School of Medicine
Introduction
G. T. NORDIN, Minneapolis

6:30 Annual Banquet.....Hotel Duluth
Presiding: R. B. BRAY, Biwabik, Vice President, St. Louis Co. Med. Society

Introduction of MRS. R. J. JOSEWSKI, Stillwater, President, Woman's Auxiliary
Presentation of Fifty Club certificates
Presentation of Southern Minnesota Medical Association Medal
Address: Black Oxen and Toggenburg Goats
A. J. CARLSON, Chicago, Professor of Physiology, University of Chicago
Address: The Challenge of the War to American Medicine
COLONEL F. W. RANKIN, Lexington, Kentucky, President of the American Medical Association

EIGHTY-NINTH ANNUAL SESSION

Tuesday, June 30

Section II

Scientific Committee: W. H. AURAND, F. J. HIRSCHBOECK, J. T. PRIESTLEY

- A.M.**
- 8:30 Scientific Cinema**Room B ExhibitsArena
- 9:00 Symposium on the Use of Blood Substitutes**Duluth Room
Chairman, P. F. DWAN, University of Minnesota
Diagnosis of Shock
E. S. PLATOU, Minneapolis
Indications for Intravenous Therapy
IRVINE MCQUARRIE, University of Minnesota
Protein Deficient States
R. M. JOHNSON, Detroit, Mich.
- 11:00 Motion Pictures Showing Preparation of Human Serum**Duluth Room
Human Serum Laboratory, University of Minnesota
P. F. DWAN
- 12:00 Round-table Luncheons**Hotel Duluth
(See Section I.)
- P.M.**
- 2:00 Nutrition Conference**Duluth Room
Chairman, R. M. WILDER, Rochester
Production and Storage of Food at Home
P. E. MILLER, University of Minnesota
Food Preparation and Preservation
EVA DONELSON, University of Minnesota
Nutrition During Pregnancy and Lactation
R. J. MOE, Duluth
Nutrition of the Infant and Child
J. D. BOYD, Iowa City, Iowa, Associate Professor of Pediatrics, University of Iowa
Nutrition in Normal Adults
J. J. BOEHRER, University of Minnesota
- 6:30 Annual Banquet**Hotel Duluth
(See Section I.)

Wednesday, July 1

Section I

Scientific Committee: A. N. COLLINS, T. R. FRITSCH, W. H. HENGSTLER

- A.M.**
- 8:30 Clinics***—Ear, Nose and Throat
St. Luke's Hospital
Eye Clinic at 9:30
St. Luke's Hospital
- 9:30 Symposium on Emergency Surgery**
St. Louis Room
Chairman O. J. CAMPBELL, Minneapolis
Management of Peripheral Nerve Injuries
A. W. ADSON, Rochester
Chest Injuries
T. J. KINSELLA, Minneapolis
Facial Injuries
J. B. ERICH, Rochester
Abdominal Injuries
M. G. GILLESPIE, Duluth

*AN EYE, EAR, NOSE AND THROAT LUNCHEON will be held under sponsorship of the Minnesota Academy of Ophthalmology and Otolaryngology at the Kitchi Gammi Club, Wednesday, at 12:30 p.m., tickets \$1.00. F. H. Haessler, Milwaukee, and J. R. Lindsay, Chicago, Academy guest speakers, will be there to talk and answer questions. The luncheon is open to all.

- Shock Therapy
C. E. REA, Saint Paul
Treatment of Burns
N. L. LEVEN, Saint Paul
Management of Fractures Under War Conditions
H. B. HALL, University of Minnesota
Discussion
- 11:00 Ocular Tuberculosis**St. Louis Room
F. H. HAESSLER, Milwaukee, Staff Member of Columbia and Milwaukee Children's Hospitals
- 11:30 Meniere's Disease**St. Louis Room
J. R. LINDSAY, Chicago, Professor of Otolaryngology, University of Chicago
- 12:00 Round-table Luncheons**Hotel Duluth
Acute Abdominal Emergencies
C. H. MEAD, Duluth
Common Skin Diseases
F. W. LYNCH, Saint Paul
Encephalitis in Minnesota
C. M. EKLUND, Minneapolis
Fractures
R. K. GHORMLEY, Rochester
Intervertebral Disk
A. W. ADSON, Rochester
Medical Aspects of Tooth Decay
J. D. BOYD, Iowa City
Obstruction of the Vesical Neck
E. L. MELAND, C. D. CREEVY, Minneapolis
Pediatric Office Gynecology
C. J. EHRENBERG, Minneapolis
Physicians' Place in Industry
C. M. PETERSON, Chicago
Rheumatic Heart Disease in Children
R. L. J. KENNEDY, Rochester
Teaching of First Aid
J. S. LUNDY, Rochester

P.M.

- 2:00 Industrial Health and Safety Conference**
St. Louis Room
Chairman, Mr. A. V. ROHWEDER, Duluth
The Doctor in Industry's War Effort
C. M. PETERSON, Chicago, Secretary, Council on Industrial Health, American Medical Association
Minnesota's Industrial Health Program
L. W. FOKER, Minneapolis
Prevention and Treatment of Heat Collapse Among Industrial Workers
F. J. ELIAS, Duluth
Diet and Fatigue
AUSTIN HENSCHER, University of Minnesota
First Aid to Injured Workmen
R. F. MCGANDY, Minneapolis
What the Medical Profession Can Do to Increase Safety and Health in War Industries
MR. A. N. WOLD, Saint Paul

Wednesday, July 1

Section II

Scientific Committee: W. H. AURAND, F. J. HIRSCHBOECK, J. T. PRIESTLEY

- A.M.**
- 8:30 Scientific Cinema**Room B ExhibitsArena
- 8:30 Clinics***—Ear, Nose and Throat
St. Luke's Hospital
Eye Clinic at 9:30
St. Luke's Hospital

*See footnote Section I.

Wednesday, July 1

P.M.
9:00 **Symposium on Tuberculosis.** . . Duluth Room
Chairman, W. A. O'BRIEN, University of Minnesota

Diagnosis and Treatment of Tuberculosis of the Trachea and Major Bronchi
S. S. COHEN, Oak Terrace
Collapse Therapy
G. A. HEDBERG, Nopeming
Role of Oleotherapy in Our Program of Collapse Therapy
F. F. CALLAHAN, Pokegama
Fallacy of Exclusive Dependence upon X-Ray in the Diagnosis of Active Pulmonary Tuberculosis
E. K. GEER, Saint Paul
E. J. BLACK, Saint Paul
Chest Conditions Simulating Pulmonary Tuberculosis
E. R. CROW, Ah-gwah-ching
Tuberculosis in Animals
W. H. FELDMAN, Rochester
Chemotherapy in Tuberculosis
H. C. HINSHAW, Rochester
Discussion

11:00 **Symposium on Tuberculosis Control.** . . .
Duluth Room
Chairman, J. A. MYERS, Minneapolis
Diagnosis of Early Tuberculosis Among University Students
RUTH BOYNTON, University of Minnesota
The Meeker County Tuberculosis Control Program
LENNOX DANIELSON, Litchfield
How a County Can Be Accredited for Tuberculosis Control
S. A. SLATER, Worthington

12:00 **Round-table Luncheons.** Hotel Duluth
(See Section I.)

P.M.
2:00 **Symposium on Eye, Ear, Nose and Throat** Duluth Room
Chairman, H. P. WAGENER, Rochester
Corneal Lesions
F. H. HAESSLER, Milwaukee
Common Diseases Affecting the Sound Apparatus
J. R. LINDSAY, Chicago
Acute Suppurative Otitis Media—A Reconsideration
C. E. CONNOR, Saint Paul
Staphylococcic Conjunctivitis
T. R. FRITSCH, New Ulm
Visual Malingering
A. G. ATHENS, Duluth
Paralysis on the 7th and 8th Nerve with Recovery
O. B. PATCH, Duluth
Death from Ciliary Failure in the Respiratory Tract
A. C. HILDING, Duluth

**BUY WAR SAVINGS STAMPS
AND BONDS**

In Memoriam

Herman Burgess Cole

Dr. Herman B. Cole of Redwood Falls died on March 29, 1942, at the age of sixty-nine.

Dr. Cole was born in East Hamburg, New York, December 6, 1872, the son of Nelson Wesley Cole and Josephine Viola Blackmer.

After receiving his medical degree from the University of Buffalo, New York, in 1896, he practiced at Hamburg, New York, until 1897. He was married December 8, 1896, to Ella Mae McHugh of Buffalo.

Dr. Cole practiced from 1897 to 1918 in Franklin, Minnesota, except for two years spent at the New York Postgraduate Hospital from 1907 to 1909. From 1918 until the time of his death he practiced in Redwood Falls, associated with Dr. T. E. Flinn and Dr. John Gordon Cole, his son.

He was a member of the Renville County Medical Society, the Minnesota State and American Medical Association, the Civic and Commerce Association of Redwood Falls and the Odd Fellows.

Besides his wife, Ella M. Cole, Dr. Cole is survived by five children, Mrs. F. L. Bell, Milwaukee; B. L. Cole, Seattle; Mrs. Audrey Corbett, Redwood Falls; Richard F. Cole, army medical corps; and John Gordon Cole, Redwood Falls.

Arthur L. Herman

Dr. Arthur L. Herman died April 24, 1942, at the age of forty-one.

Born in Minneapolis, Dr. Herman attended the public schools, graduating from West Side High School. He later attended the University of Minnesota, receiving the degree of B.Sc. and in 1922 his degree of M.D. He interned at the Minneapolis General Hospital in 1922-23, and subsequently practiced medicine and surgery in Minneapolis, being associated with Dr. George Eitel.

Dr. Herman was a member of the medical staffs of Eitel and Asbury Hospitals. His medical and general associations included The Hennepin County Medical Society, The Minnesota State Medical Association, The American Medical Association, Minnesota Pathological Society, The American College of Surgeons, Phi Beta Pi, Incus, Alpha Omega Alpha, I.O.O.F., The Interlachen Country Club and the Minneapolis Athletic Club.

David Jackson Jacobson

Dr. D. J. Jacobson of Bemidji died at Rochester, Minnesota, April 16, 1942, following a second heart attack. The first heart attack was suffered in Portland, Oregon, earlier in the month, while visiting his family there.

Dr. Jacobson was born February 2, 1891, at Des

IN MEMORIAM

Moines, Iowa. He received his medical degree from Drake University in 1913. He practiced at Des Moines from 1914 to 1923 when he moved to Russell, Minnesota. In 1927 he went to Blackduck where he practiced until 1938 and then moved to Bemidji.

Dr. Jacobson was a member of the Upper Mississippi Medical Society, the Minnesota State and American Medical Associations. He became a member of the Association of Military Surgeons in 1919 and the same year became a Reserve Officer in the United States Public Health Service, of which he was an active member during the first World War. He had been a member of the Home Lodge No. 370 A.F. and A.M. at Des Moines since 1912, having transferred to his local lodge in 1936. He also belonged to the Benevolent and Protective Order of Elks.

Dr. Jacobson is survived by his widow and two daughters Jolayne and Lynne; two sisters Roslyn and Ella of Minneapolis and two brothers Joe and Ben of Des Moines, Iowa.

William Wilmerding Moir

Dr. William W. Moir was born in the town of Bloomington on March 26, 1881, the son of Joseph and Agnes (Pond) Moir. His early schooling was obtained at the Minneapolis Public Schools where he graduated from Central High School. He attended the Medical School at the University of Minnesota, receiving his degree of M.D. in 1906 and for the next year was an intern at Asbury Hospital.

From 1907 to 1911 Dr. Moir practiced in Gilbert, Minnesota. Subsequently he returned to Minneapolis where he practiced general medicine and surgery until the time of his death. He attended clinics at the University of Vienna in 1926.

He was on the staff of Asbury Hospital and served as President of the staff in 1939. During the World War he served as Medical Officer of Ambulance Company No. 4, attached to the 31st Infantry, stationed near Vladivostock, Siberia.

Besides being a member of Hennepin County Medical Society, Dr. Moir was a member of The Minnesota State and the American Medical Associations. He was a member of Ark Lodge, A. F. & A. M., Phi Rho Sigma, the Lafayette Club, Automobile Club and the Simpson Methodist Church.

Dr. Moir died at his home February 3, 1942, being survived by his wife and three sons, one of whom, Wm. W. Moir, is a First Lieutenant in the Medical Corps of the United States Army.

Reuben Pennington

Dr. Reuben Pennington was born in Minneota, Minnesota, November 19, 1894. He graduated from the Minneota High School and subsequently attended the University of Minnesota where he graduated from the College of Dentistry in 1915. After practicing his profession at Minneota and at Glenwood, Minnesota, from 1915 to 1923, he attended the medical school of the University of Minnesota from which he graduated

in 1929. He interned at the Minnesota General Hospital from 1929-1930 and subsequently practiced general medicine in Minneapolis.

Dr. Pennington was a member of the visiting staff of Asbury Hospital and was on the staff of the University Students Health Service. He taught in the dental school of the University of Minnesota from 1930-1931. He was a member of the Hennepin County Medical Society, Minnesota State and American Medical Associations. He belonged to Delta Sigma Delta and was a member of Ark Lodge, A. F. & A. M. Dr. Pennington died February 25, 1942, being survived by his wife and one daughter.

INDUSTRIAL HEALTH

(Continued from Page 489)

The Journal of the American Medical Association, "this saving would equal the time required to build five capital ships, sixteen thousand tanks or nine thousand bombers."

As war production in the United States climbs and working hours are extended the question of fatigue and absenteeism also becomes acute in many plants.

Fatigue Is Problem

Careful British studies made during the last war showed that at three shell factories men working sixty-three and one-quarter hours per week lost 7 per cent of their time from sickness. The percentage diminished as the working hours decreased so that when the working week was fifty-four hours the lost time was only 4 per cent.

In American munitions plants where the working day was increased from nine to twelve hours, the rate of absenteeism increased from less than 6 per cent before the hours were lengthened to 9.3 per cent during the first year after the increase and to 12.2 per cent during the second year, thus showing the cumulative effect of longer hours.

The conclusion of British investigators, made on the basis of studies made during the last war and in this war, is that more than sixty hours a week leads to increased loss of time during work, increased absenteeism and illness. One day's rest in seven is found to be essential furthermore, and organized or enforced rest periods, particularly with an opportunity to take food during the rest period, assist in maintaining a high output level.

PROCEEDINGS of the MINNESOTA ACADEMY OF MEDICINE

Meeting of April 8, 1942

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, April 8, 1942. Dinner was served at 7 o'clock and the meeting was called to order at 8 o'clock by the President, Dr. Martin Nordland.

There were 44 members present.

Minutes of the March meeting were read and approved.

Upon balloting, the following men were elected as candidates for membership in the Academy:

Dr. Francis Lynch.....	Saint Paul
Dr. J. B. Carey	Minneapolis
Dr. Walter Fansler	Minneapolis
Dr. L. H. Fowler	Minneapolis

The scientific program followed.

Dr. Yoerg, of Minneapolis read his Inaugural Thesis on "Cysts of the Urachus." Lantern slides were shown.

CYSTS OF THE URACHUS

OTTO W. YOERG, M.D.

Minneapolis, Minnesota

Cysts of the urachus, caused by incomplete closure of the allantoic canal, though uncommon, are frequent enough to occasion interest in a review of the literature. The condition probably occurs more often than the small number of reported cases would indicate.

Embryology and Anatomy

The urachus is a fetal relic. It is the remains of the allantoic stalk which in embryonic life extends from the cloaca into the umbilical cord. This canal gradually becomes occluded in early fetal life and forms a connective-tissue cord extending from the apex of the bladder to the umbilicus as the superior ligament, which lies anterior and is firmly attached to the peritoneum. Morris states that it assists in keeping the bladder up, especially in early life, so that the bladder is easily emptied and is allowed to enlarge in its freest directions.

The urinary bladder is of mesodermic origin and arises from the ventral portion of the cloaca, later forming a triangle continuing from the apex as the allantoic stalk to the umbilicus (Kantor). Bladder epithelium has been demonstrated in a urachus.

Luschka states that the allontois does not become a complete cord, but that small cavities may remain in the urachus. These cavities are called the Lacunae of Luschka and are found only at postmortem.

Pathological Anatomy

The normal process of embryonic closure of the allantoic stalk to form the urachus occasionally does not take place; instead a complete or partially patent urachus remains. When complete, a canal connects the bladder with the umbilicus, with the result that urine may escape at the umbilicus. McGregor states that this condition is usually associated with some obstruction of the outflow of urine from the bladder. He has had two such cases with obstruction at the prostatic urethra.

Cysts of the urachus can develop as a result of a disordered anatomy. They may be minute or large. A number of cases in which the cysts attained enormous size have been reported. Archibald states that the smaller cysts frequently show the remains of the longitudinal muscle coat of the urachus, being lined with transitional epithelium. The larger cyst walls are usually fibrous, and the lining is usually a single layer of flattened epithelial cells. The fetal urachus is lined with several layers of epithelium, and sections of the lumen may be occluded with cells.

Vaughn and Long are in substantial agreement as to classification. Long suggests a classification of four types for cysts of the urachus:

1. Those which communicate only with the bladder.
2. Those which communicate only with the umbilicus.
3. Those which communicate with both the bladder and the umbilicus.
4. Those which do not communicate with either the bladder or the umbilicus (blind type).

Vaughn has a similar classification and states that the blind type, closed at both ends, is the most frequent group encountered. Cysts of the urachus may occur anywhere along the urachus, but are more frequently found in the lower half.

Infection is present in practically all of the cysts that come to operation. Colon bacilli, streptococcus and staphylococcus have been reported. Many cases, however, show no bacteria on smear or culture. The mode of infection is not clear, but most observers feel that entrance through the lymphatics or blood stream seems plausible.

Cysts of the urachus can become malignant. F. Pendl reports a case of colloid carcinoma and states that Schwartz in 1912 reported the first case of primary carcinoma of the urachus. T. deWaard in 1939 reported two rare cases of cancer of the urachus.

John H. Long in 1927 reported a dermoid cyst of the urachus, definitely proved by microscopic section. Cullen in his "Diseases of the Umbilicus" states that dermoid cysts are rare and after reviewing the cases reported found only six to be definitely dermoid cysts.

Etiology

There appears to be no agreement as to why urachal cysts occur. Some believe that the Lacunae of Luschka enlarge to form the cysts. It would, however, hardly seem possible that these minute cavities could enlarge without a secreting lining. Although bladder epithelium does not have a secreting function, it is, of course, possible that epithelial lining may have changed its function and become secreting. An obstruction of the urine flow would account for the completely patent cyst, but could not produce the internal blind cyst, which is by far the most common type.

Diagnosis

Diagnosis of a urachal cyst is usually made at operation. A small or large tumor mass in the midline between the umbilicus and the symphysis pubis may exist for years without producing symptoms. Only when these cysts become infected is relief sought.

The usual symptoms of infection, such as fever, increase in white count, and an enlargement of the mass, which is usually firm and often tender and painful, should lead one to suspect a urachal cyst. Only about 15% show a discharging sinus at the umbilicus. Diagnosis of a patent urachus is not difficult as urine escapes at the umbilicus. It is, in fact, usually recognized in infancy. If an opening is present into the bladder and closed at the umbilicus, a cystoscopic examination is of value, but differentiation from a diverticulum of the bladder may be somewhat difficult. The closed or blind type, by far the most common, is also the most difficult of diagnosis. The condition has been confused with parovarian cysts, extopic gestation, tuberculous peritonitis, appendicitis, distended bladder and, when of considerable size, ascites. It should not be confused with a vitelline duct cyst, also a rare vestigial condition, as this type of cyst, though it occurs at the umbilicus, does not continue as a sinus toward the symphysis pubis. If the infected cyst has ruptured into the peritoneal cavity, peritonitis will further complicate diagnosis.

Archibald states that urachal cysts of moderate size are palpable below the umbilicus, sometimes slightly to one side of the midline as rounded tumors often moving more freely from side to side than up and down, and that movement of the tumor from side to side may produce an indrawing of the umbilicus.

Treatment

Various methods of attack in the treatment of urachal cysts are advocated. In some cases the cysts can be removed completely without entering the peritoneal cavity. However, if infection is present, the cyst will usually be firmly adherent to the peritoneum and a conservative procedure is advisable, consisting of incision, curettage and free drainage. It appears that many of these infected cysts so treated will heal permanently. If, however, the sinus should persist, excision of the cyst can be done more safely later, in the absence of acute infection, for it is usually necessary to enter the abdominal cavity to facilitate removal. In the patent urachus which connects with the

bladder, it is obvious that removal is necessary and that the opening in the bladder be closed.

Padovani and Dufour feel that if a resection of the cyst is done it is necessary to pass distinctly outside of the limits of the cyst in order to open the peritoneal cavity without trying to separate the cyst from the peritoneum, which would involve the danger of entering both the cyst and abdominal cavity and infecting the peritoneum with the septic contents of the cyst.

Review of the Literature

A study of the literature discloses that Lawson Tait, in an article published in 1883 in the *British Gynecological Journal*, gave the first clear picture of this condition. He reported twelve cases. Weiser made an extensive review of the literature up to 1906 and collected eighty-six cases, to which he added three of his own. In the eighty-six cases reported only nine were patent, seven were external blind, eight internal blind and forty-six blind. Sixteen could not be classified. He found few statistical papers. From his article it appears that Hoffman, in 1870, Wolff in 1873, and Atlee in 1873, had given first reports of cysts of the urachus. Next, Wutz, in 1883, analyzed all alleged cases diagnosed clinically or at autopsy, said most of them had been mis-diagnosed or had questionable symptoms, and felt that there were definitely no clinically important urachal cysts reported up to that time.

Doran also tried to break down the diagnosis of cases and in a measure agrees with Wutz.

Tait, it appears, was the first to make a diagnosis of urachal cysts before operation and only a few have made claim to prior diagnosis since then. F. Byron Robinson has reported four additional cases of Tait's and two of his own. Weiser's three cases have all been large cysts, two in women and one in a man. He made a complete removal of the cysts, and all these patients recovered.

The data on the condition suggest that it is rarely encountered. Weiser states that much of the history in the eighty-six cases up to 1906 was meager and questionable; twenty-one of these reported were males, fifty-eight females and in seven, sex not stated. He made the deduction that urachal cysts were most common in middle life, for half of the cases in which age was given occurred between the ages of twenty and forty. He deduced that they were more frequent in women than in men. Hugh Young states that only three cases were found in 12,500 admissions to the Brady Urological Institute.

Kantor, in the *Annals of Surgery* in 1939, gave a résumé of all cases reported from 1907 to 1936, to which he added two cases of his own. He found thirty-six cases. The records in this more recent series are most complete, as would be expected because of more modern methods in diagnosis. Roentgenology, contrast media and the cystoscope have made it possible to make a preoperative diagnosis more often. In this series of thirty-six cases, twelve were diagnosed preoperatively. Ages ranged from twenty months to sixty-nine years; average age, twenty-eight. The condition occurred in nineteen males and seventeen females, this in

contrast to earlier reported cases in which females predominated. Of these, thirty-two cases were in Group four, communicating with neither the bladder nor umbilicus. However, twenty-two of these were questionable, that is, could not be definitely placed in Group four. One case was a questionable Group three, communicating with the bladder and umbilicus or completely patent. Two cases were in Group 1, communicating only with the bladder. One ambiguous case was probably in Group 2, communicating only with the umbilicus. Definite infection was shown in twenty cases, eight cases were probably infected, and in eight

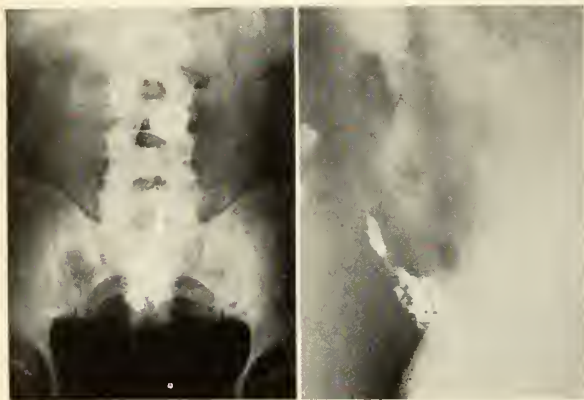


Fig. 1.

Fig. 2.

Fig. 1. Anteroposterior view—metal plaque lies over umbilicus—extending downward from plaque; the sinus terminating in cyst can be seen. Lipiodol was used for contrast media.

Fig. 2. Lateral view of abdomen, metal plaque over umbilicus, again showing injected sinus and cyst.

has always been well, but for the past two years had noticed a small lump just below the umbilicus. This mass had increased slowly in size, but had not been tender nor painful until ten days before admittance to the hospital. At that time the mass became much larger, with pain, which became worse on straining. At no time had there been a sinus or discharge at the umbilicus.

The patient was admitted to Northwestern Hospital on September 2, 1923, temperature 100°, pulse 80, blood pressure 140/90, leukocyte count 16,000, urine negative except for a trace of albumin.

General physical examination disclosed a normal individual except for an acutely inflamed swelling two inches in diameter in the midline of the abdomen below the umbilicus. A diagnosis of an incarcerated infected hernia (omental) was made, with possible Meckel's diverticulum.

Operation was done the following day under general anesthesia. An incision was made over the swelling, which was then the size of a small orange. A thick walled cavity was entered which contained a heavy mucoid pus, without offensive odor. On exploration of this cavity, it was found that a probe could be passed down the midline between the fascia and peritoneum. No omentum was recognized and no sinus could be found entering the abdominal cavity. The wound was drained and the symptoms subsided. Ten days later, a complete gastrointestinal study was done. This disclosed no connection of the intestinal tract with the abscess cavity. Smears from the contents of the cavity showed no bacteria and no growth on culture. The patient was discharged from the hospital sixteen days after incision of this abscess. Two months later the wound had healed and remained sealed for six months, when a small amount of the same mucoid drainage reappeared, but the wound healed readily and did not cause discomfort.

The patient was seen again in June, 1927, when a diagnosis of an acute retrocecal appendicitis was made, and an operation performed. A retrocecal appendix with an abscess was found. The appendix was removed and the abscess drained. At that time it was noted that no connection existed between the abdominal parietal wall and the intestinal tract. The patient recovered, and left the hospital four weeks after operation.

In June, 1930, seven years after incision and drainage of the abdominal wall abscess, the patient returned again, stating that the sinus at the umbilicus had opened and closed every few months in the past three years, but recently had opened and closed once a week. He stated he was otherwise well but was tiring of the annoyance of this persistent discharge. He again entered Northwestern Hospital on June 30, 1930. His temperature was 98°, pulse 65, blood pressure 148/98. The urine showed a trace of albumin but no pus. He was taken to the x-ray department, where the sinus was injected with lipiodol and anteroposterior and lateral films were made of the abdomen. The films disclosed a sinus extending downward in the median line toward the pubic area, and at the lower end of the sinus an enlargement about 1.5 inches in diameter was noted. The sinus and cyst cavity appeared to be just anterior to the peritoneum but with no evidence of any connection with the urinary bladder.

A diagnosis from the x-ray findings of an infected urachal cyst and sinus was made.

Operation was performed on July 1, 1930, under local anesthesia. The sinus was injected with methylene blue. To our amazement a black contrast media resembling india ink resulted from the incompatibility with the iodide. This was found later to be a much better media for contrast than the methylene blue itself. A catheter was then inserted into the bladder to obtain urine, which was found to be free from methylene blue, indicating that the cyst did not connect with the bladder. An incision was made in the midline, from the umbilicus to the pubis, and the old scar was removed. The

cases, no evidence was found of infection. Removal by excision was done in twenty-four cases, operation was reported difficult in five, and the peritoneum was excised in these five cases with cyst wall. Of those excised, sixteen were cured, five died of peritonitis, and one patient died of anesthesia. Incision and drainage were performed in twelve cases and all recovered. Nine were cured and two were improved, and later excised with cure. One case was not followed. In several cases the bladder was opened. Inadequate closure of the abdomen was encountered occasionally.

Kantor's two patients were a female child two years of age who was cured by incision and drainage, and a physician, aged 29. The cyst was drained but the sinus continued to discharge. Ten months later the cyst was excised, but convalescence was again complicated by continued drainage. Several months later x-rays disclosed a sinus extending to the right iliac region. An exploratory operation disclosed an old gangrenous appendix with abscess. Recovery was uneventful except for a persisting small fecal fistula.

Cases since 1936 have been reported by Garvin, A. Wylburt and J. C. Lacano Gonzaley, G. and R. Gayet, and Clavel and Cavillher.

Case Report

A.R.E., aged forty-six, married, construction superintendent, a vigorous, well nourished man, states that he

sinus was then explored and dissected out from the umbilicus downward. It was found to lie under the fascia and directly over the peritoneum to which it was firmly attached. After careful dissection the sinus was removed without entrance to the peritoneal cavity, down to the lower end, where it widened into a cyst-like

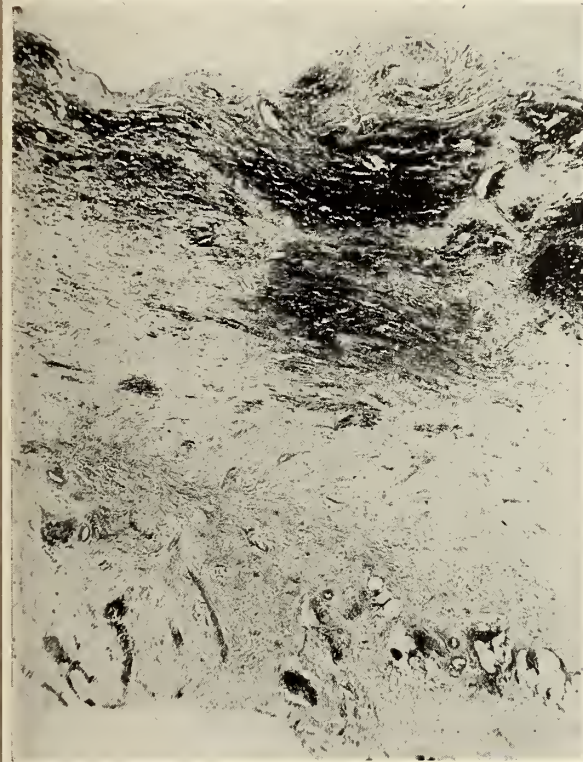


Fig. 3. Low power photomicrograph from cyst wall discloses a large amount of fibrous tissue with chronic inflammation, and blood extravasation.

cavity about 1.5 inches in diameter. The lower end of this cyst cavity appeared to end at the dome of the urinary bladder. The cyst was firmly adherent to the peritoneum and contained a broken down cellular debris, which was scooped out. Smears made of this material showed it to contain cellular debris but no bacteria.

It was found that removal of the cyst would require entering the abdominal cavity. Because we were certain that the cyst did not communicate with the bladder, we felt a more conservative course to be advisable. The cyst cavity was then curetted and treated with a 20 per cent silver nitrate solution. The upper wound was closed and a gauze packing used in the cyst cavity with a small penrose drain along the old sinus to the umbilicus. This drain was removed two days later.

Microscopic sections of the tissue disclosed inflammation and increase of connective tissue with round cell infiltration. An area of small square and columnar epithelium was found arranged in a row. These cells apparently were the remains of the cell lining of the cyst.

The patient's convalescence was uneventful and he was able to leave the hospital two weeks later. The packing in the cyst cavity was renewed every few days for a period of six weeks. The wound was fully healed in about two months.

It is now over eleven years since the operation and there has been no recurrence of symptoms. He has for the last three years supervised government construction in Alaska.

Summary

The urachus, a vestigial remnant, only rarely gives rise to pathological conditions. When disease does occur it is usually in the form of a simple cyst, but occasionally the cyst may be a dermoid. Cysts of the urachus

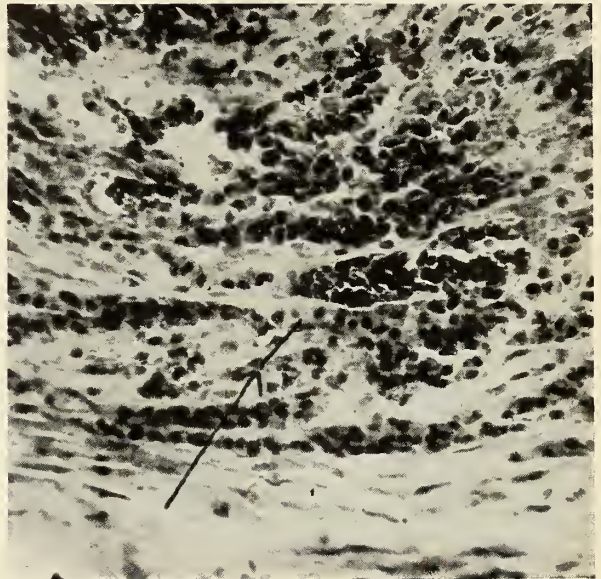


Fig. 4. High power microphotograph. Note dense fibrous wall and lymphocytic infiltration. An area is disclosed showing square type and low columnar epithelial cells arranged in a row which are apparently the remains of the cell lining of the cyst.

can become malignant. Several cases of carcinoma have been reported.

A cyst of the urachus may remain dormant for years, and only become of surgical importance when infected.

The cause of infection in these cysts is obscure, but its course is probably through the lymphatics or the blood stream.

Diagnosis preoperatively is difficult in the case of a large cyst as it must be differentiated from other abdominal tumors. In the smaller cysts diagnosis should be easier, but is probably overlooked because of its rarity.

Treatment of cysts of the urachus is either complete excision of the cyst or incision and drainage. It is evident that most of the men reporting cases are aware of the dangers of peritonitis when complete removal is attempted. This danger is obvious as noted in the thirty-six cases collected by Kantor, where a death rate of approximately 30 per cent occurred following excision, whereas in contrast, no deaths occurred when incision and drainage were practiced.

Conclusion

A review of the literature on urachal cyst is presented with a description of the anatomy, embryology, histology and pathology. The etiology, diagnosis and treatment are discussed from an analysis of various cases reported and the conclusions arrived at by the

men reporting their findings, and from the knowledge obtained from treating a case which is described in detail.

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Discussion

DR. A. E. BENJAMIN, Minneapolis: I talked with Dr. Yoerg today about this case of his. I happened to remember I had one or two cases in the past and looking up the records found one rather interesting one. The patient was a woman 42 years of age. She had a very badly displaced uterus and this tumor was rather high in the abdomen. I could not make out that it was connected with the uterus at all. I decided to operate, and, when we got in, found this tumor was a cyst of the urachus. It did not open into the bladder or umbilicus and was not inflamed. After some exploring of the abdomen, I decided to dissect it out. I dissected out the whole urachus and cyst and then did a modified Gillian operation to replace the uterus. She made a very satisfactory recovery and has had no trouble since. The microscope confirmed our diagnosis.

The second patient whom I recall did not have much of a cyst but did have a long discharging sinus extending down to the bladder. This was cured by injecting nitrate of silver, as Dr. Yoerg did in his case.

DR. F. E. B. FOLEY, Saint Paul: Dr. Yoerg is to be congratulated on his excellent and comprehensive description of cysts of the urachus; and the Academy upon acquiring a general surgeon capable of such an erudite presentation of a urologic subject.

It is easy to recognize the obvious; to recognize the obscure marks clinical talent. Diseases of the urachus seem obscure only because of general want of famil-

ilarity with urologic subjects and, particularly, urologic embryology.

My first interest in diseases of the urachus was prompted by the New Zealand urologist, J. Campbell Begg, during a visit here several years ago. At that time Mr. Begg was making a comprehensive study and review of the subject, particularly with reference to tumors of the urachus. While in Rochester, he reviewed and analyzed all of the Mayo Clinic cases. While engaged in this study he was my guest and expounded at length on his then current interest. Later, he published a comprehensive paper on the subject which is generally regarded as authoritative. I was surprised that Dr. Yoerg did not refer to this publication.

Cyst formation is only one of the pathologic changes that affect this vestigial remnant. Lesions of the urachus may be classified under three groups: (1) inflammation (of which I have seen three cases); (2) cyst (of which I have seen two cases); and (3), neoplasm (of which I have seen one case).

There may be inflammation of the urachus without cyst formation or cyst not accompanied by inflammation. The inflammatory process usually extends to surrounding structures and presents as a palpable mass in the midline below the umbilicus.

The cysts and associated inflammatory change have been described by Dr. Yoerg.

The commonest neoplasm is adenocarcinoma.

Dr. Yoerg stated that diagnosis is usually made at operation, and that the first diagnosis was made by Tate, and since then there have been very few correct pre-operative diagnoses. My own experience and that of most urologists is strictly not in accord with these assertions. My own error has been not failure to recognize disease of the urachus but the error of making this diagnosis in cases of other lesions. A small papillary tumor in the vault of the bladder was erroneously diagnosed as a tumor of the urachus simply because of its location. With the exception of a few cases, correct diagnosis of diseases of the urachus is easily made. When a mass is palpable in the abdominal wall below the umbilicus, pathologic change in the urachus should be one of the first things considered. The next thing to consider is cystoscopy. By means of cystoscopy, most lesions of the urachus will be recognized. A localized area of inflammation in the bladder vault is usually an extension of inflammation from the urachus. A polypoid or papillary projection of the mucosa in this location may represent an inflammatory polyp or neoplasm originating in the urachus and projecting or extending into the bladder. The usual neoplasm is adenocarcinoma and needs radical excision. Purulent material exuding from a point in the bladder vault is usually the exudate from an infected urachus with or without cyst formation. Another pathologic condition which may be confused with this and differentiated with difficulty is a diverticulum of the bowel which has attached itself to and ruptured into the vault of the bladder. I observed one such case. There was profuse pyuria, the source of which was a small opening in the bladder vault. Further studies with contrast medium proved that the tentative diagnosis of infected urachus was incorrect and that, actually, there was a diverticulum of the bowel communicating with the bladder.

In the presence of a new and acute inflammatory process, preliminary incision, drainage and curettage may be appropriate—but will not be curative. In all of the cases I have encountered, the inflammatory process was of long standing and in all of these complete excision was successful. In at least one of these cases the peritoneal cavity was soiled with infectious contents but with no untoward effect. When the inflammation is of long standing, the patient has been well vaccinated and soiling of the peritoneum is well borne. Except in cases of sudden, acute inflammation of the urachus, I would be in favor of complete excision as only this will give permanent cure. In cases of

sudden, acute inflammation, possibly with abscess formation, incision and drainage, I should think, would be appropriate but should be regarded as a preliminary measure.

DR. PHILIP DONOHUE, Saint Paul: The urologist may encounter cases representing pathologic conditions of the urachus, and therefore is interested in the subject presented by Dr. Yoerg. My most recent clinical experience was in the case of a 22-month-old boy. This case illustrated the effect of urinary obstruction in the production of pathologic changes in the urachus. Dr. Begg, in his discussion of this phase of the subject, stated that the urachus communicates with the bladder in one-third of normal individuals. The communication may be recognized cystoscopically as a small papilla or indentation in the vault of the bladder. A fold of mucosa or a valve prevents urine from entering the urachus. If obstruction to the bladder occurs, the elevated intravesical pressure will be sufficient to overcome the valve, permitting the introduction of urine and bacteria with development of pathologic changes such as cysts and abscesses.

In the child referred to there was congenital urethral stricture, and large retention of urine in the bladder. The child's condition was poor, due to advanced hydro-nephrotic change and urinary infection, and immediate cystostomy was indicated. A poorly-defined mass was palpable in the abdominal wall over the distended bladder, and a pathologic condition of the urachus was suspected. The urachus was completely removed. The structure was separated from the peritoneum down to the bladder and then extraperitonealized. The suture line to close the peritoneum was T-shaped. The attachment with the bladder was divided and examination of the intact urachus after excision showed inflammation with abscess formation.

DR. YOERG, in closing: I stated early in my paper that urachal cysts probably occur more often than the small number of reported cases would indicate. This is borne out by the discussion here tonight.

Dr. Benjamin several days ago recalled two cases of probable urachal cysts in his practice, which he was kind enough to report here. The description of his cases fits the condition perfectly.

Begg's paper, referred to by Dr. Foley, is an excellent presentation on the subject. Most of the literature is made up of only case reports.

I agree with Dr. Foley that excision of the cyst is desirable. However, when acute infection is present, incision and drainage is safer. There should be no mortality when incision is performed. If a cure cannot be effected, the cyst can be excised later with much less chance of infecting the peritoneal cavity.

Dr. Donohue spoke of obstruction at the prostatic urethra, and the use of the cystoscope. Obstruction of the outflow of urine undoubtedly causes a back pressure which prevents the normal obliteration of the abdominal portion of the allantois, resulting in a patent urachus, as noted by McGregor.

I want to thank Dr. Gustav Schwyzer for his kind remarks.

The meeting adjourned.

E. V. KENEFICK, M.D.,
Secretary.

According to a survey made by Joseph N. Burroughs of Oakland, California, the birth of children to Rotarians has decreased rapidly since the days of our grandparents. "Present Rotarians," he says, "have an average of 1.71 children, compared with 4.74 for their fathers and 5.68 for their grandfathers."

WOMAN'S AUXILIARY

MRS. JOHN J. RYAN, *President*

Saint Paul, Minnesota

MRS. L. R. BOLES, *Publicity Chairman*

Knollwood, Hopkins, Minnesota

General News

A special meeting of the Auxiliary State Board was called by the president, Mrs. John J. Ryan, on May 7, 1942, in the Lowry Medical Arts Building, Saint Paul. At that time it was decided that the president-elect, Mrs. R. J. Josewski, Stillwater, should go as the delegate to the national convention in Atlantic City and read Minnesota's report.

Mrs. J. M. Reynolds, Minneapolis, chairman of the Revisions Committee, read the new constitution and by-laws for the State Auxiliary and an informal discussion followed. Others who had assisted on the committee were Mrs. E. V. Goltz, Saint Paul, and Mrs. Harold Wahlquist, Minneapolis.

Remember the State Medical Association convention in Duluth, June 29, 30, and July 1, 1942. Plan now for a little vacation then!

County News

Stearns-Benton—The Medical Auxiliary held its regular dinner meeting at the Hayes Hostess House in St. Cloud, April 23, 1942. Mrs. P. E. Barringer, president, presided at the business meeting. Mrs. William Friesleben, finance chairman, announced that the rummage sale and card party given in April had been quite successful.

Members reported that they have supported the Red Cross in many ways: Mrs. Karl Walfred is conducting a class in Home Nursing, with several members taking the course; others are taking courses in First Aid and Nutrition; many are doing sewing and knitting in their homes, Mrs. J. B. McDowell having one thousand hours to her credit in this work. There are still others who are working on the National Women's Defense Program.

The following Nominating Committee will present a state of officers at the next meeting:

Mrs. Karl Walfred, St. Cloud; Mrs. S. J. Raetz, Maple Lake; Mrs. J. J. Gelz, St. Cloud.

The program which followed included a review of the book "The Doctors Mayo" given by Mrs. John Gelz, and a review of the article "How to Relax" taken from *Hygia* and given by Mrs. P. E. Barringer.

Mrs. F. P. Frisch, Willmar, was a guest at the meeting.

Hennepin—The annual luncheon of the Auxiliary was held at 510 Groveland Avenue, May 1, 1942. Mrs. John Curtin, who has been a splendid social chairman, made the affair a grand finale for the termination of a fine Auxiliary year. Being May Day, there were gay pots of begonias at each place with huge boxes of pansies at the head table. Mrs. F. S. McKinney, president, presided. Eighty-six members were present, and

following the annual reports, a fine slate of officers was elected for next year. Mrs. Henry Quist expressed what everyone sincerely felt—the appreciation of having had such a very fine president in Mrs. McKinney for the past year—her good, fair leadership appealed to all!

The following are the newly elected officers:

President—Mrs. James Johnson
 President-elect—Mrs. Harold Wahlquist
 First Vice President—Mrs. J. M. Hall
 Second Vice President—Mrs. Willard White
 Treasurer—Mrs. Frank Bryant
 Recording Secretary—Mrs. Charles Merkert
 Corresponding Secretary—Mrs. R. F. Erickson
 Auditor—Mrs. Henry Quist
 Custodian—Mrs. E. G. Nylander

Mrs. J. C. Davis has been appointed Minneapolis commander of the Woman's Field Army of the Minnesota Society for the Control at Cancer. In this post, she recently conducted the sixth annual enlistment drive and educational campaign here.

Red River Valley.—The sixteenth anniversary of the founding of the Auxiliary to the Red River Valley Medical Society was recently observed when members of the Auxiliary gathered at the home of Mrs. M. O. Oppegaard for their annual business meeting, following a dinner session with their husbands.

Mrs. D. V. Boardman of Twin Valley, retiring president, presented a cake, flanked by sixteen candles, and members participated in a candlelighting ceremony honoring officers of the past years, and four charter members who are still active in the organization—Mrs. G. A. Morley, first president; Mrs. J. F. Norman, Mrs. O. L. Bertelson and Mrs. C. L. Oppegaard. A song was offered in tribute to the charter members.

Officers elected were: Mrs. W. G. Paradis, Crookston, president; Mrs. A. Shedlov, Fosston, vice president; Mrs. O. K. Behr, Crookston, recording secretary; Mrs. C. G. Uhley, Crookston, corresponding secretary; Mrs. C. L. Oppegaard, treasurer.

The Auxiliary voted a contribution to the American Field Army for the Control of Cancer and pledged its support to this organization in other ways.

Mrs. Shedlov won score honors at the bridge which followed the business meeting.

Ramsey.—Success is not achieved without effort! A great deal of thought and work were put into the recent successful teas given by Ramsey County Auxiliary.

The tea at the University Club, Saint Paul, in honor of the wives of physicians attending the American College of Physicians convention, was attended by a large number of women. Mrs. E. V. Goltz headed the committee on arrangements. It was a beautiful tea!

Presidents of all women's organizations in Saint Paul were invited to the Public Relations Tea given by Ramsey County Auxiliary. Mrs. Charles W. Wass, public relations chairman, with Mrs. L. W. Barry, were in charge of the event. Assisting her were: Mmes. E. C. Eshelby, C. Harry Ghent, Eugene E. Scott, William Heck, Henry VonderWeyer, Bernard O'Reilly, John A. Lepak, Joseph Bicek, and Herman Kesting. Presiding at the tea table were: Mrs. John J. Ryan, presi-

dent of the State Auxiliary; Mrs. Mark Ryan, president of Ramsey County Auxiliary; Mrs. George A. Williamson, president-elect of Ramsey County Auxiliary; and Mrs. Carl B. Drake, wife of the president of Ramsey County Medical Society. An original skit which she wrote for the occasion was presented by Mrs. Donald Bacon. Mrs. E. A. Roberts and Mrs. Douglas Brand presented an original dialogue written around the Festival of Nations given recently at the Saint Paul Auditorium. In his talk to the gathering, Dr. H. Z. Giffin of Rochester, president of the State Medical Association, praised the work of the American Society for Control of Cancer. "Your Auxiliary," he said, "will do well to be more closely associated with this organization. When you consider that there are 50,000 deaths a year from cancer, you will realize the importance of efforts to control this disease. To carry on the work the organization must have money, and your Auxiliary has a fine opportunity for service with the Women's Field Army." In speaking of the need of confining tuberculosis carriers to sanatoria, he said, "These persons are a menace to the community when they are outside an institution. At present there is no law in respect to them. Efforts of the Minnesota Public Health Association in combating tuberculosis are to be commended."

Rice.—Mrs. Arthur W. Neutzman, Faribault, has been reelected president of the County Auxiliary.

Blue Earth.—The following are the new officers of the Auxiliary:

President—Mrs. A. F. Kemp, Mankato
 Vice President—Mrs. J. T. Schlesellman, Mankato
 Secretary—Mrs. H. Bradley Troost, Mankato
 Treasurer—Mrs. R. Wynn Karney, Mankato

Southwestern Minnesota.—Mrs. B. O. Mork, Jr. Worthington, has been reelected president of Southwestern Minnesota Medical Auxiliary.

Clay-Becker.—Mrs. C. W. Moberg, Detroit Lakes is the newly elected president of the County Auxiliary. Other officers are: Mrs. F. D. Thysell, Hawley, vice president; Mrs. S. B. Seipz, Barnesville, secretary treasurer.

Lyon-Lincoln.—Mrs. W. H. Workman, Tracy, has again been conferred the honor of president.

NO ANTERIOR ARCH

That "anterior metatarsal arch" about which foot specialists talk so learnedly just doesn't exist when the foot is at work, Dr. Herbert Eftman of the College of Physicians and Surgeons, Columbia University, told the meeting. Dr. Eftman has invented an instrument which shows the distribution of weights and pressures on the sole of the functioning foot, and it does not show the existence of an anterior arch at all. It will be necessary, therefore, he said, to re-interpret "fallen metatarsal arches" in terms of differential distribution of pressures among the ends of the metatarsals, or long bones of the foot.

Practical application of his instrument was suggested by Dr. Eftman: "The apparatus used in this investigation offers a rapid method for the accurate evaluation of the functional capacity of the feet and should be useful in determining the suitability of individuals for occupations involving sustained use of the feet."—*Science News Letter*, April 25, 1942.

REPORTS and ANNOUNCEMENTS

MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

Dr. L. A. Nelson, Saint Paul, is the new president of the Minnesota Academy of Ophthalmology and Otolaryngology. Other officers are: Dr. C. Wilbur Rucker, Rochester, first vice president; Dr. E. D. Risser, Winona, second vice president; Dr. W. A. Kennedy, Saint Paul, secretary-treasurer; Dr. George E. McGeary, Minneapolis, former secretary-treasurer, is chairman of the Council.

MINNESOTA HOSPITAL ASSOCIATION

Dr. Walter Gardner, superintendent of the Anoka State Hospital, was elected president of the Minnesota Hospital Association at the nineteenth annual convention held in Rochester, May 24, 25, and 26.

Other officers named were: Rev. L. B. Benson, superintendent of Bethesda hospital, Saint Paul, president-elect; Sister M. Assumpta, superintendent, Hibbing General hospital, first vice president; Miss Elizabeth McGregor, superintendent, Gillette State hospital, St. Paul, second vice president; and Miss Nellie Gorgas, superintendent, Saint Barnabas hospital, Minneapolis, treasurer.

J. H. Mitchell, manager Colonial hospital, Rochester, was elected delegate to the house of delegates of the American Hospital Association.

Dr. A. F. Branton, of Willmar, was reelected executive secretary, and Dr. T. E. Broadie, superintendent, Ancker hospital, Saint Paul, was reelected to the board of directors.

Presiding over the convention sessions was Miss Esther Wolfe of Minneapolis, association president.

Past presidents of the organization were presented with gold keys, this being the twenty-fifth anniversary of the Hospital Association's organization. Eleven past presidents were present to receive their keys: Dr. E. E. Mariette of Glen Lake Sanatorium, Oak Terrace; J. J. Drummond of Worrall hospital, Rochester; Paul H. Fesler of Nopeming sanatorium, Nopeming; Joseph J. Norby of Columbia hospital, Milwaukee; J. H. Mitchell of Colonial hospital, Rochester; Victor M. Anderson of Abbott hospital, Minneapolis; Dr. A. F. Branton of Willmar clinic, Willmar; Dr. Peter D. Ward, of Charles T. Miller hospital, Saint Paul; A. G. Stasel of Eitel hospital, Minneapolis, and R. M. Amberg of University hospital, Minneapolis.

G. W. Olson, administrator of Queen's Hospital in Honolulu, first president, sent greetings by radiogram.

Among medical men participating in the convention program were: Dr. Branton who presented a short history of the Minnesota Hospital Association; Dr. F. H. Krusen, Rochester, who spoke on "The War Emergency Course in Physiotherapy"; Dr. L. H. Wright of New York City, "The Anesthetist"; Dr.

Basil C. MacLean of Strong Memorial Hospital in Rochester, New York, president of the American Hospital Association; Dr. Bert Caldwell, executive secretary of the American Hospital Association, "We, The Hospitals"; Col. Wallace D. Hunt, M.D., Chief of the Medical Defense Area, Omaha; Dr. Malcolm T. MacEachern of Chicago, associate director of the American College of Surgeons who urged preparation of hospitals for any civilian defense emergency; Dr. B. F. Smith, superintendent of the State Hospital at Rochester.

Dr. Walter Judd of Minneapolis, former medical missionary in China, addressed the convention's annual banquet on "Eastern Affairs." Dr. Judd was introduced by Dr. Patrick Wu of Rochester, only Chinese to be a member of the American College of Surgeons. Dr. Charles W. Mayo introduced Dr. Wu.

Several allied groups met in conjunction with the convention.

MINNESOTA MENTAL HYGIENE SOCIETY

Rev. Edgar F. Witte of Saint Paul was elected president of the Minnesota Mental Hygiene Society, May 26, at its annual meeting in Coffman Memorial Union on the University of Minnesota campus.

Other officers named were Dr. Philip H. Heersema of Rochester, vice president; Mrs. Carl Lefevre, Minneapolis, secretary; Ralph Helstein, Minneapolis, treasurer.

Named to the directorate were Drs. R. E. Nutting, Duluth, D. E. McBroom, Saint Paul, and Starke R. Hathaway, University of Minnesota.

The executive committee will consist of the four officers together with Dr. Hathaway, Dr. H. M. Keith of Rochester, Dr. Alex Blumstein of Minneapolis, Mrs. Paul Myers of Saint Paul, Miss Anne Starks and Miss Brenda Fischer, both of Minneapolis.

AMERICAN CONGRESS OF PHYSICAL THERAPY

The American Congress of Physical Therapy will hold its twenty-first annual scientific and clinical session September 9, 10, 11 and 12, 1942 inclusive, at the Hotel William Penn, Pittsburgh, Pa.

The annual instruction course will be held from 8:00 to 10:30 a.m., and from 1:00 to 2 p.m. during the days of September 9, 10 and 11 and will include a round-table discussion group from 9:00 to 10:30 a.m., Thursday, September 10.

The scientific and clinical sessions will be given on the remaining portions of these days and Saturday morning. A new feature will be an hour demonstration showing technique from 5:00 to 6:00 p.m. during the days of September 9, 10 and 11.

All of these sessions and the seminar will be open to the members of the regular medical profession and



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their qualified aids. For information concerning the seminar and program of the convention proper, address the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

HENNEPIN COUNTY SOCIETY

New officers of the Hennepin County Medical Society were announced at the organization's meeting, May 4, which was addressed by Dr. Leverett D. Bristol, health director of the American Telephone & Telegraph Company. His subject was "Health and Safety of War-time Workers."

The officers are: Dr. Willard David White, president; Dr. Ivar Sivertsen, first vice president; and Dr. Arthur H. McFarland, second vice president.

Dr. Thomas J. Kinsella and Dr. Ernest L. Meland were named to the executive committee; Dr. McFarland and Dr. Charles N. Spratt, board of censors; Dr. Russell W. Morse and Dr. Otto W. Yoerg, board of trustees; and Dr. Axel E. Hedback and Dr. Kinsella, ethics committee.

Named as delegates to the Minnesota State Medical Association were Drs. Chauncey A. McKinlay, Kenneth H. Phelps, Ray R. Knight, Lawrence F. Richdorf, and Thurston W. Weum. Alternates are: Drs. William H. Aurand, Adam M. Smith, Joseph C. Michael, Frank R. Hirshfield and Moses Barron.

MINNEAPOLIS SURGICAL SOCIETY

Officers of the Minneapolis Surgical Society for 1942-43 are: Dr. Richard R. Cranmer, president; Dr. H. O. McPheeters, vice president; and Dr. Robert F. McGandy, secretary-treasurer.

Members of the Executive Council include, besides the officers: Dr. Arthur Bratrud, retiring president; and Drs. R. C. Webb, Henry M. Lee, S. R. Maxeiner, William A. Hanson and Otto Yoerg.

WASHINGTON COUNTY SOCIETY

The Washington County Medical Society held its regular monthly meeting May 12, 6:30 p.m., at the White Pine Inn, Bayport, Minnesota.

The guest speaker, Merritt W. Wheeler, M.D., of Saint Paul, told of the "Anatomy, Pathology, Surgical Steps and Reasons Therefore", as his colored movies of external sinus operations were being run; he cited cases and results and answered numerous questions, which were all very interesting and instructive.

The Washington County Medical Society has now completed the vaccination against smallpox and diphtheria immunization in all the schools in the county. The enthusiastic coöperation of Mr. Guy D. Smith for the city schools in Stillwater and Mrs. Grace McAlpine, County Superintendent of Schools and the willing enthusiastic help of all the teachers made this possible.

The county's Health Relations Committee is now planning for further closer coöperation with the Parent-Teacher Association.

OF GENERAL INTEREST

Dr. F. H. Rollins of St. Charles was reelected to the St. Charles board of education last month.

* * *

A son was born to Dr. and Mrs. Burtrum C. Schiele of Minneapolis, April 21.

* * *

Dr. and Mrs. R. D. Davis of Clearbrook announce the birth of a son, April 24.

* * *

Twins, a son and a daughter, were born to Dr. and Mrs. Cyrus O. Hansen of Minneapolis, May 7.

* * *

Dr. and Mrs. Charles E. McLennan of Minneapolis are the parents of a daughter, Nancy Ann, born May 3.

* * *

Born to Dr. and Mrs. Carl O. Rice of Minneapolis, a daughter, Sara-Jae Gronna, March 28.

* * *

A daughter was born to Dr. and Mrs. Leonard A. Lang of Minneapolis, May 12.

* * *

Dr. and Mrs. D. Kalinoff of Stillwater returned in April from a visit in the South. Their daughter, Helen, was operated upon for appendicitis on May 8.

* * *

Dr. William F. Braasch of Rochester is state chairman of the Procurement and Assignment Service, medical doctors section.

* * *

Dr. William Gjerde of Staples was recently promoted to the rank of captain, Medical Corps, at the Aviation School at Randolph Field, Texas.

* * *

Dr. Nathan J. Berkwitz of Minneapolis was in Boston, May 19, to present a paper before a meeting of the American Psychiatric Association.

* * *

Among those recently certified by the American Board of Surgery are Drs. Donald C. MacKinnon, Hamlin A. N. Mattson, and Louis Sperling of Minneapolis.

* * *

Dr. R. B. Potter has taken over the practice of the late Dr. W. W. Moir in the Nicollet and Lake Medical Building, Minneapolis. He has been in this location since Dr. Moir's death in February.

* * *

Dr. James Doyle Ryan of Fairfax became associated in practice with Dr. C. J. Henry in Milaca, May 15. A graduate of the Saint Louis University, he interned at Saint Luke's hospital in Minneapolis.

* * *

Married May 10 in Saint Paul were Miss Bernis Nides of Hibbing and Dr. Victor J. Birnberg. Dr. Birnberg is the son of Dr. and Mrs. Ansel N. Birnberg of Saint Paul and White Bear Lake. The couple will make their home in Saint Paul.

Dr. Ruth E. Boynton, director of the Students' Health Service at the University of Minnesota, was elected a member of the board of directors of the Minnesota League of Women Voters at the recent annual meeting.

* * *

Dr. Owen H. Wangenstein of Minneapolis, head of the department of surgery at the University of Minnesota Medical School, addressed the Chicago Surgical Society, May 1, on the subject "The Surgical Aspects of Peptic Ulcer."

* * *

From the Chinese Army on the eastern front in Burma comes news of a Minnesota doctor, Captain Donald M. O'Hara of Janesville. Captain O'Hara is working with the fabulous surgeon-missionary, Dr. Gordon S. Seagrave.

* * *

Dr. Joseph Berkson of Rochester has been assigned to the office of the air surgeon of the United States Army air forces in Washington, D. C. He will be in charge of medical statistics in the air surgeon's office and will have the rank of major.

* * *

Dr. Wesley W. Spink, associate professor of medicine at the University of Minnesota Medical School, was elected secretary of the American Society for Clinical Investigation at its meeting in Atlantic City last month.

* * *

Minneapolis doctors who have entered the military service include Dr. Vernon L. Hart and Dr. Delph T. Stromgren. Dr. John H. Moe will continue the practice of Dr. Hart, and Drs. H. P. Linner and E. H. Dunlap will continue for Dr. Stromgren.

* * *

Dr. Arnold Settlege, former staff member of the Worthington Clinic in Worthington, is now attached to the recruit reception center at Fort Devens, Massachusetts. He is a first lieutenant in the Army Medical Corps.

* * *

Among papers presented at the thirty-fourth annual meeting of the American Society for Clinical Investigation in Atlantic City, May 4, was one on "The Effect of Promin on the Blood of Tuberculosis Patients" by Drs. Byron E. Hall, Horton C. Hinshaw of Rochester and Dr. Karl H. Pfuetze of Cannon Falls.

* * *

Dr. William T. Peyton, director of the division of neurosurgery at the University of Minnesota Medical School, presented a paper, "The Relief of Intractable Pain," at the annual meeting of the Nebraska State Medical Association in Omaha, May 4-5.

Also on the program was Dr. Henry W. Woltman of Rochester. His paper was entitled "Postoperative Neurologic Complications."

Dr. Harold I. Lillie of Rochester was named first vice president of the American Laryngological Association at its meeting in Atlantic City, New Jersey, last month. Dr. Charles J. Imperatori of New York was elected president.

* * *

Among speakers at the forty-eighth annual session of the American Laryngological, Rhinological and Otolological Society, held in Atlantic City, New Jersey, June 1-3, was Dr. Gordon B. New of Rochester. His subject was "The Treatment of Congenital Cysts of the Larynx."

* * *

Dr. William E. Proffitt, Jr., of Minneapolis, former University of Minnesota halfback, reported for duty with the Army Medical Corps at San Luis Obispo, California, May 11. He is a first lieutenant. Dr. Proffitt starred on the 1934 national championship football team.

* * *

Dr. Donald Duncan, a graduate of the University of Minnesota Medical School, has been appointed professor and head of the department of anatomy at the University of Buffalo Medical School in Buffalo, New York. Dr. Duncan, who has been with the University of Texas, formerly taught in the medical schools of Minnesota, Buffalo and Utah universities.

* * *

At the ninth annual meeting of the American Rheumatism Association to be held in Atlantic City, New Jersey, June 8, a paper, "An Analysis of the Manner of Death Among Thirty Patients with Rheumatoid Arthritis," was presented by Drs. Edward F. Rosenberg, Archie H. Baggenstoss and Philip S. Hench of Rochester.

* * *

Among new Fellows in the Mayo Foundation at Rochester is Dr. John A. Tweedy of Winona. A graduate of the University of Minnesota Medical School, he interned at the Charles T. Miller hospital in Saint Paul 1936-37. Since December 1937, he has been in practice and on the staff of the Winona General Hospital.

* * *

Dr. A. G. Liedloff of Mankato was reelected chairman of the executive board of the Blue Earth County Public Health Association at its annual meeting, May 14. Dr. William A. O'Brien, director of postgraduate medical education at the University of Minnesota, was principal speaker. His subject was "Recent Advances in Public Health."

* * *

The Minnesota Human Serum Laboratory has been called to active duty by the Minnesota State Guard, and will be known as the First Medical Detachment of the Minnesota State Guard.

Its function will be to prepare a reserve of human serum to be used by military and civilian organizations in the state in case of bombing or sabotage.

Dr. Paul F. Dwan of Minneapolis is commanding officer with the rank of major.

Herald R. Cox, ScD., associate bacteriologist with the United States Public Health Service, stationed at the laboratory in Hamilton, Montana, delivered the second annual *Journal-Lancet* lecture at the University of Minnesota Medical School, Minneapolis, May 22. His subject was "Typhus Fever, with Special Reference to Epidemiology and Immunity."

* * *

Regulations for the administration of the Blood and Plasma Bank Program of the Medical Division of the United States Office of Civilian Defense have now been prescribed, and funds are available for grants to assist approved hospitals in establishing blood and plasma banks. Only hospitals within 300 miles of the Atlantic, Pacific or Gulf coasts are eligible for such grants.

* * *

A grant of \$30,000 from the W. D. Kellogg Foundation at Battle Creek, Michigan, has been accepted by President Walter C. Coffey of the University of Minnesota, for the use of students in medicine, dentistry and public health. The money will be used to aid students who usually earn their tuition by working summers. Because of the accelerated program which eliminates summer vacations, this is no longer possible.

* * *

Dr. Edgar W. Bedford of Minneapolis moved his offices last month into his newly constructed clinic building at 2862 Hennepin Avenue.

The one-story building, which will also house offices of two dentists, has a full basement, most of which is given over to laboratories. Reception and consultation rooms on the main floor are paneled with Philippine mahogany. A large parking place is provided for at the rear of the building.

* * *

Presiding at the thirty-second annual meeting of the medical section, American Life Insurance convention held in Colorado Springs, Colorado, June 4-6, was Dr. Thomas N. Dickson of Saint Paul, medical director of the Minnesota Mutual Life Insurance Company.

Dr. Dickson was elected vice chairman of the medical section last June and became chairman in April following the death of Dr. W. F. Blackford of Louisville, Kentucky.

* * *

Dr. William A. O'Brien, professor of preventive medicine and public health and director of postgraduate medical education at the University of Minnesota, delivered the commencement address at high school graduation exercises in New London, May 27, and at Hendricks, May 28.

He also was commencement speaker at the exercises of St. Mary's School of Nursing in Minneapolis, May 10.

* * *

Appointment of Dr. Albert G. Schulze, Saint Paul physician, as a member of the Ramsey County Welfare Board, is announced by Mayor John McDonough. The appointment is for the unexpired term of the late Dr. C. F. McNevin, which ends July 1, 1943.

Dr. Schulze has served as president and secretary



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of the Ramsey County Medical Society, and is a member of the Minnesota State Board of Health. He heads the obstetrics and gynecology department of Ancker Hospital.

* * *

When the North Dakota State Medical Association held its annual meeting in Jamestown, May 18-20, the program included papers by Dr. Erling S. Platou, Minneapolis, "Pediatrics"; Dr. Stanley R. Maxeiner, Minneapolis, "Fractures"; Dr. Lawrence R. Boies, Minneapolis, "Symptom of Headache"; and Dr. Gordon R. Kamman, Saint Paul, "The Depressed Patient."

Dr. Edward C. Rosenow of Rochester participated in a symposium on "Infectious Encephalomyelitis."

* * *

Dr. Harold S. Diehl, dean of medical sciences at the University of Minnesota, has been named chairman of the newly organized Committee on Allocation of Medical Personnel under the Procurement and Assignment Service for Physicians, Dentists and Veterinarians of which he is a member of the board.

Dr. Diehl attended a meeting of the new committee in Washington, D. C., May 17, and a meeting of the directors' board of the Procurement and Assignment Service, May 18.

* * *

The University of Minnesota Medical School has instituted two new courses for senior medical students in anticipation of their entering military service following completion of their internships.

The courses are: War Medicine, which will consist of a series of lectures by specialists in the field, to be given from 8 to 9 a.m., Mondays, Wednesdays and Fridays during the summer session; and Tropical Medicine, which will be given during the fall and winter quarters, Mondays and Wednesdays from 3 to 4 p.m.

* * *

Dr. John L. Rothrock of Saint Paul recently received the highest honor conferred by Gettysburg College at Gettysburg, Pennsylvania, on its alumni at a ceremony there. He was presented the Alumni Meritorious Service award.

Graduated from the college in 1885, Dr. Rothrock practiced medicine in Saint Paul from 1890 until 1936 when he retired. He was on the staff of the University of Minnesota Medical School from 1895 to 1936, when he was made professor emeritus of obstetrics and gynecology.

* * *

Dr. Henry F. Helmholtz of Rochester was awarded the Minnesota Public Health Association's Christmas Seal distinguished service plaque, May 22, in connection with the ceremony honoring Olmsted County for its tuberculosis record. The plaque was presented him for his public health and Christmas Seal work in Olmsted County over the past twenty years.

Only two other Minnesotans have previously been given the award, presentation of which was made by Dr. E. A. Meyerding, executive secretary of the Minnesota Public Health Association.

Courses for physicians in the Kenny technique for the management of acute phase of poliomyelitis, will be given at the University of Minnesota Center for Continuation Study June 1-6, July 6-11 and August 10-15.

Courses for nurses in the application of hot fomentations will also be given at the Center, June 15-20 and July 13-18. The first of this series for nurses was held May 25-29.

In addition to these courses, technicians are being trained in periods of two to six months' duration.

Dr. Miland E. Knapp is Director of Training Courses in Kenny Technique.

* * *

Dr. George E. Holm, biochemist with the bureau of dairy industry, United States Department of Agriculture, Washington, since 1920, has been awarded the Borden Company prize of \$1,000 in recognition of "his contributions to the understanding of the basic causes and the control of oxidative deterioration of fats and oils, and to the prevention of spoilage of dairy products caused by the oxidation of milk fat." The prize is awarded through the American Chemical Society for "outstanding research in the chemistry of milk."

Dr. Holm received his Ph.D. from the University of Minnesota in 1919.

* * *

Minneapolis physicians who have reported for duty with the United States Navy include Dr. Kenneth E. Fritzell and Dr. Philip A. Arling who have joined the Minneapolis delegation at Great Lakes Naval Training Station.

Dr. William P. Sadler, lieutenant commander, has reported for duty at the Norfolk Navy Yard. His entering the service made it impossible for him to accept an invitation to deliver the commencement address at the Van Buren (Arkansas) High School. Dr. Sadler rates with Bob Burns as one of the most distinguished sons of that school.

* * *

To break the "bottleneck" of procuring birth certificates for defense work, the Minnesota Board of Health has assigned Dr. D. A. Dukelow of Minneapolis, director of Public Health Education, to take active charge of the division of vital statistics.

Appointment of Dr. Dukelow was made upon recommendation of a board of health committee, composed of Dr. Ruth E. Boynton and Professor F. E. Bass of the University of Minnesota.

More than 7,500 applications for birth certificates have piled up as a result of persons either enlisting in the military services or applying for employment in war industries, where proof of citizenship is required.

* * *

Among those who addressed the special course in obstetrics given at the University of Minnesota Center for Continuation Study, May 11-16, were Dr. John H. Moore of Grand Forks, North Dakota, president of the Central Association of Obstetrics and Gynecology, and Dr. Ralph A. Reis, assistant professor of obstetrics

and gynecology at the Northwestern University Medical School.

The course was attended by a group of physicians from North Dakota and South Dakota, sent by their state health departments. In attendance the last three days were a group of Minnesota physicians, sent by the State Department of Health.

* * *

So that adequate medical aid will be available in case of any war emergency, ranging from an air raid to an industrial accident in a war plant, Saint Paul has set up a Medical Civilian Defense Committee, headed by Dr. Robert Schoch, city health officer.

This committee is directing the coördination of the work of civil authorities, hospitals, medical and nursing groups, and is preparing for hospital field units, casualty stations and decontamination stations. A complete emergency field unit has already been set up at four hospitals; twenty-three district casualty stations have been designated; and fifty buildings have been made available as decontamination stations where victims of gas attacks could be treated.

* * *

An honorary degree of LL.D. was conferred upon Dr. O. J. Hagen of Moorhead at the Fiftieth Anniversary Commencement of Concordia College, Moorhead, June 2.

Dr. Hagen was a former instructor at the college, and for ten years a member of its Board of Trustees. Among the various positions of responsibility Dr. Hagen has held are: president of the Minnesota Public Health Association, member of the Minnesota State Board of Health, member of the Board of Regents of the University of Minnesota. In 1936, he was elected to the presidency of the National Governing Board of State Universities and Allied Institutions, and in 1941 was made a fellow of the International College of Surgeons at Mexico City.

* * *

Dr. and Mrs. Joseph B. Friberg, formerly of Saint Paul, are on their way to Tanganyika Territory in the interior of Africa where they will serve as medical missionaries to 300,000 natives. They will be stationed at the town of Iambi. Their service in Africa will be under the auspices of the Board of Foreign Missions of the Augustana Lutheran synod which has headquarters in Minneapolis.

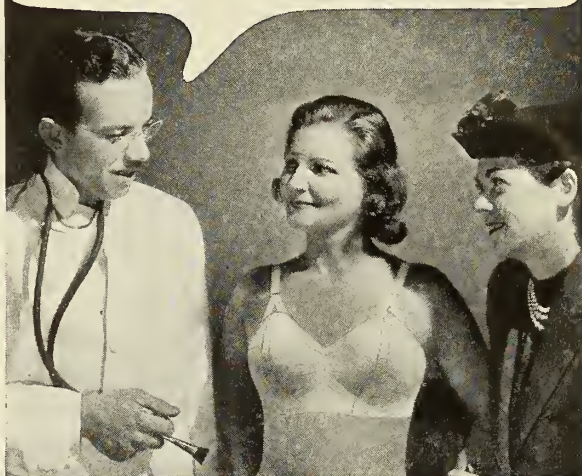
Born in China, son of missionary parents, Dr. Friberg was graduated from the University of Minnesota Medical School. He served his internship at Miller Hospital and practiced medicine in Saint Paul before accepting his new appointment. Mrs. Friberg is a graduate of the University of Minnesota School of Nursing.

* * *

Captain John H. Grindlay of Rochester, former Mayo Foundation fellow, was one of the group of twenty-six foot-weary American physicians, civilians and military men who marched out of Burma into India with Lieutenant General Joseph H. Stilwell.

An Associated Press dispatch from New Delhi dis-

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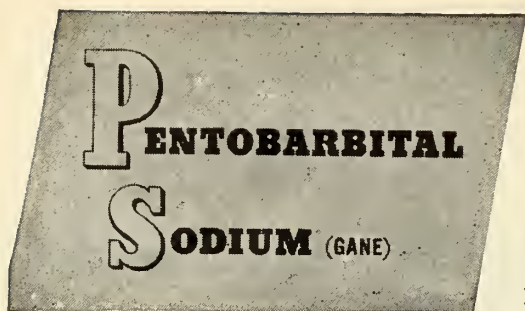


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closed that the former Rochester physician was among the Americans who journeyed 104 miles legging it through jungles, across steaming rivers and among head-hunting Burmese to reach India. Most of the time they were just a couple of jumps ahead of the Japanese.

Leaving Rochester in November, 1940, Captain Grindlay went to the Walter Reed General Hospital Army Medical Center at Washington.

* * *

In a move to cut red tape and to commission additional medical officers as rapidly as possible, the Army last month opened an office in Saint Paul to recruit doctors and dentists from Minnesota. The office is at 496 Lowry Medical Arts Building, adjoining offices of the Minnesota State Medical Association and the State Dental Association.

In charge are Major C. A. Wood of Fort Leavenworth, Kansas, and Major Baptiste Groebner of Fort Snelling.

Through regulations unique in Army procedure, the two officers are empowered to put through commissions in three or four days, as compared with the usual average of three months. They will make final decisions on the spot and administer oaths of service.

Men accepted will be given time to wind up their affairs before reporting for duty.

The office will be the only one of its type in Minnesota.

About 500 Minnesota physicians have been classed as "available" for military service by committees functioning under the Procurement and Assignment Service, according to Col. J. E. Nelson, state selective service director.

* * *

Endowed with the income of a fund of more than \$100,000 left to the University of Minnesota by the late Dr. Charles F. Dight of Minneapolis, the Charles Fremont Dight Institute for the Promotion of Human Genetics is now in operation on the University of Minnesota campus.

Dr. Clarence P. Oliver is its director. Among members of the institute committee is Dr. Eric Kent Clarke director of the Psychiatric Clinic for Children.

Studies within the field of genetics and eugenics will be directed particularly at present to "a search for traits, such as metabolic disturbances, which may have genetic bases, but are not recognized as hereditary traits."

Family data and records bearing on the inheritance of defects would be greatly appreciated by the Institute. Among family records particularly desired are those on nervous disorders, blindness, dental defects, blood diseases, twins and long-lived families.

First lecture under the auspices of the Institute was

delivered April 10 when Dr. Philip Levine of the Newark Beth Israel Hospital in Newark, New Jersey, discussed "Serological Differentiations of Human Blood."

* * *

An In-Service Health Training Program for teachers of rural schools in Saint Louis County was concluded last month. It consisted of five sessions. Speakers included several physicians.

At the first meeting Dr. E. L. Tuohy of Duluth, chairman of Public Health Education, Minnesota State Medical Association, spoke on "General Orientation"; Drs. Charles B. Cunningham and Walter S. Neff, both of Virginia, and Drs. Selma Mueller and W. E. Hatch of Duluth, spoke on "The Teacher's Health."

Dr. Viktor O. Wilson of Minneapolis, director of the Division of Child Hygiene, Minnesota State Department of Health, spoke on "Educational Aspects of School Health Services" at the second session; while Dr. Donald A. Dukelow of Minneapolis, director of public health education, State Department of Health, discussed "Health Education."

Included on the program for the third session were Dr. C. A. Scherer, county health officer of Saint Louis County, who had for his topic, "Environmental Health" and Dr. A. T. Laird, superintendent of Nopeming Sanatorium, Nopeming, who spoke on "Tuberculosis."

At the fourth session, Dr. Mario Fischer, director of public health, Duluth, discussed "A Communicable Disease Control Program."

The final session, a dinner meeting, was held May 1. Dr. C. M. Jessico of Duluth, spoke on "Mental Hygiene" and Dr. W. A. O'Brien, director of postgraduate medical education at the University of Minnesota, presented a summary.

* * *

A large number of Minnesota physicians will participate in the ninety-third annual session of the American Medical Association in Atlantic City, June 8-12.

Minnesota members of the House of Delegates are: Drs. A. W. Adson of Rochester, James M. Hayes of

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FRACTURES & TRAUMATIC SURGERY—Two Weeks Intensive Course will be offered starting June 29 and September 21. Informal Course available every week.

GYNECOLOGY—Two Weeks Intensive Course will be offered starting October 5. One Month Personal Course starting August 3. Clinical and Diagnostic Courses every week.

OBSTETRICS—Two Weeks Intensive Course will be offered starting September 21. Three Weeks Course starting August 10. Informal Course every week.

OTOLARYNGOLOGY—Two Weeks Intensive Course will be offered starting September 14. Clinical and Special Courses every week.

OPHTHALMOLOGY—Two Weeks Intensive Course will be offered starting September 28. Five Weeks Course in Refraction Methods starting October 19. Informal Course every week.

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Minneapolis, W. A. Coventry of Duluth and Francis J. Savage of Saint Paul.

Dr. Louis A. Buie of Rochester is a delegate from the Section of Gastro-enterology and Proctology.

Among the speakers at the General Scientific meetings will be Dr. Wallace H. Cole of Saint Paul, who will present a paper on June 9, "An Evaluation of the Kenny Treatment of Poliomyelitis."

Dr. Fred W. Rankin of Lexington, Kentucky, formerly of Rochester, will be installed as president at the opening general meeting, June 9.

Minnesota people, who will take part in the programs of the various sections, follow:

Section on Practice of Medicine (Joint meeting with Section on Experimental Medicine and Therapeutics of which Dr. Edgar V. Allen, Rochester, is section secretary): Paper, "Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)]"—Experimental Studies by Drs. Jesse L. Bollman and F. W. Preston of Rochester; Clinical Studies by Drs. Edgar V. Allen, Nelson W. Barker and John M. Waugh of Rochester. Paper, "An Analysis of the Operative Treatment of Patent Ductus Arteriosus," by Drs. M. J. Shapiro and Ancel B. Keys of Minneapolis.

Section on Surgery, General and Abdominal: Discussions by Dr. C. W. Mayo, Dr. E. V. Allen and Dr. James C. Masson of Rochester. Paper, "Is the Asthmatic Patient a Good Surgical Risk?" by Drs. F. W. Gaarde, L. E. Prickman and H. J. Raszkowski, Rochester.

Section on Obstetrics and Gynecology: Paper, "Conservative Treatment of Inversion of the Uterus," by Drs. Charles E. McLennan and John L. McKelvey of Minneapolis with discussion by Dr. W. A. Coventry of Duluth. Discussion of a paper, Dr. Virgil S. Counseller of Rochester.

Section on Ophthalmology: Paper, "Neuropsychiatric Geriatrics" by Dr. Henry W. Woltman of Rochester. Discussion of a paper, Dr. William L. Benedict, Rochester.

Section on Laryngology, Otology and Rhinology: Discussion by Dr. Horace Newhart of Minneapolis.

Section on Pathology and Physiology (Joint meeting with Section on Gastro-enterology and Proctology): Paper, "The Gastro-intestinal Tract and the Liver," Dr. Frank C. Mann, Rochester, sectional vice chairman. Paper, "Gastroscopic Observation in Duodenal Ulcer," Drs. J. B. Carey and R. S. Ylvisaker, Minneapolis.

Section on Nervous and Mental Diseases: Discussion by Dr. Bayard T. Horton of Rochester.

Section on Preventive and Industrial Medicine and Public Health: Paper, "Results of Use of Multiple Vitamins for Prevention of Colds," by Dr. Harold S. Diehl of Minneapolis, member of the sectional executive committee.

Section on Urology: Discussion by Dr. William F. Braasch, Rochester. Paper, "Carcinoma of the Prostate Gland: Clinical Data Concerning 253 Cases Treated by Transurethral Resection," by Dr. Gershom J. Thompson of Rochester, sectional vice chairman. Paper, "The Recognition and Treatment of the Incipient Carcinoma of the Prostate Gland," by Dr. Charles

OF GENERAL INTEREST

D. Creevy of Minneapolis. Dr. Frederic E. B. Foley of Saint Paul is a member of the sectional executive committee.

Section on Orthopedic Surgery: Paper, "The 'Combined Operation' in Low Back and Sciatic Pain," by Drs. Ralph K. Ghormley, J. Grafton Love and Henry Herman Young of Rochester.

Section on Gastro-enterology and Proctology: Discussions by Dr. Walter C. Alvarez of Rochester, Dr. Valter A. Fansler of Minneapolis, and Dr. J. A. Barden of Rochester. Paper, "Nonspecific Types of Ulcerative Proctitis: Treatment and Prognosis," by Drs. Philip W. Brown and Louis A. Buie of Rochester. Paper, "Diverticula of the Colon: Proctoscopic Findings as an Aid in the Diagnosis," by Dr. R. J. Jackman, Rochester. Paper, "Ulcerating Lesions of the Stomach," Dr. Byrl R. Kirklin, Rochester.

Section on Anesthesiology: Discussions by Dr. Ralph C. Knight of Minneapolis and Dr. Bayard T. Horton, Rochester. Paper, "Postoperative Bronchoscopy," Drs. Herbert W. Schmidt, Lloyd H. Mousel and S. W. Harrington of Rochester. Dr. John S. Lundy, Rochester, is sectional secretary.

Section on General Practice: Paper, "What Causes Gas?" by Dr. Walter C. Alvarez, Rochester.

* * *

Among those participating in the scientific exhibit at the American Medical Association meeting are:

Special Exhibit on Backache: Drs. Ralph K. Ghormley of Rochester, Miland E. Knapp of Minneapolis and Frank Krusen of Rochester.

Poliomyelitis: Lectures and demonstrations on the Kenny Technique, presented by the National Foundation for Infantile Paralysis and the University of Minnesota School of Medicine, Drs. Wallace H. Cole, Miland E. Knapp and John F. Pohl of Minneapolis.

Section on Practice of Medicine: Drs. E. J. Kepler, M. H. Power and F. J. Robinson of Rochester, "Diagnosis and Treatment of Addison's Disease."

Section on Surgery, General and Abdominal: Dr. James C. Masson, Rochester, "Use of Fascia Lata in Repair of Hernias."

Section on Obstetrics and Gynecology: Drs. L. M. Randall, M. C. Piper, L. A. Brunsting and M. B. Dockerty, Rochester, "Kraurosis and Allied Lesions of the Vulva and Certain Neoplasms of the Ovary."

Section on Experimental Medicine and Therapeutics: Drs. Asher Chapman and S. F. Haines of Rochester, "Some Relationships of the Thyroid and Pituitary Glands to Iodine Metabolism." Also, Drs. George M. Higgins and Dr. Ray D. Williams of Rochester and Dr. Arthur Gatz of Carleton College, Northfield, "Reactions in Young Rats Fed Human Diets Low in the Vitamin B Complex."

Section on Urology: Drs. R. K. Ghormley and M. B. Coventry of Rochester, "Degenerative and Pathologic Changes in Lumbosacral Intervertebral Disks."

Section on Anesthesiology: Drs. L. H. Mousel, H. W. Schmidt, and A. H. Bulbulian, Rochester, "Causes, Prevention and Treatment of Postoperative Atelectasis."

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Section on Preventive and Industrial Medicine and Public Health: "Dietary Deficiency Diseases" by the Council on Foods and Nutrition, AMA, and the Food and Nutrition Board of the National Research Council, of which Dr. R. M. Wilder, Rochester, is member.

Section on Orthopedic Surgery: Drs. R. K. Ghormley and M. B. Coventry, Rochester, "Degenerative and Pathologic Changes in Lumbosacral Intervertebral Disks."

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is Dr. F. I. Moersch, Rochester; from the Section on Dermatology and Syphilology, Dr. Hamilton Montgomery, Rochester.

* * *

The Connecticut State Medical Society celebrated its 150th anniversary meeting at Middletown, Connecticut, on June 3 and 4, 1942. It was here that on October 9, 1792, thirty-six practitioners of medicine of the State of Connecticut gathered at the Court House for the first meeting of the society. The society was the fourth state medical society to be established in America and is the third to have had continuous existence since its founding. It is interesting to note that all but two of the first names of the founders from Elnathan Beach to Jeremiah West, were names taken from the Bible.

HOSPITAL NOTES

A \$1,500 addition is being constructed on the Mound Park Hospital in Saint Paul. Miss Mary Danielson is superintendent.

* * *

The resignation of Bernard S. Andrus of South Saint Paul as a member of the board of the Mineral Spring Sanatorium at Cannon Falls, has been accepted by the commissioners of Dakota County. Herbert Swanson has been appointed to succeed him.

* * *

A course for nurses in emergency hospital procedure was given at the University of Minnesota Center for Continuation Study, June 3, 4 and 5.

* * *

National Hospital Day, May 12, celebrated on the 122nd anniversary of the birth of Florence Nightingale had added significance at Saint Barnabas Hospital in Minneapolis this year. It was the occasion of the dedication of the new children's unit. Open house was held

* * *

At the annual meeting of the Winona (Minnesota) General Hospital Association, L. A. Geise and J. A. Henderson were elected members of the association, group of sixteen in whom title to the community institution rests. They succeed Dr. G. J. Tweedy, resigned, and the late S. L. Prentiss.

L. H. Bailey was reelected president; H. R. Wicking, vice president; H. K. Brehmer, secretary. J. F. McConnon was named treasurer.

George M. Edblom, superintendent, reported that hospital service was provided 3,270 patients during the year ending May 1.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

ANNE MEDICAL LECTURES—The Lymphatic System. Its Part in Regulating Composition and Volume of Tissue Fluid. By Cecil K. Drinker, Professor of Physiology and Dean of the School of Public Health, Harvard University. 101 pages. Illus. Price, \$2.35 cloth, \$1.50 paper cover. Stanford University, Calif.: Stanford University Press, 1942.

EPHRITIS. Leopold Lichtwitz, M.D. Chief of Medical Division of the Montefiore Hospital, Clinical Professor of Medicine, Columbia University, New York. 328 pages. Illus. Price, \$5.50 cloth. New York: Grune & Stratton, 1942.

THE MANIFESTATIONS OF INTERNAL DISEASES. I. S. Tassman, M.D., Associate Professor of Ophthalmology. Graduate School of Medicine, University of Pennsylvania, Philadelphia, Attending Surgeon, Wills Hospital, Philadelphia. 542 pages. Illus. Price, \$9.50, cloth. St. Louis: C. V. Mosby Co., 1942.

MANAGEMENT OF THE SICK INFANT AND CHILD. Sixth Revised Edition. Langley Porter, B.S., M.D., M.R.C.S. (Eng.), L.R.C.P. (Lond.), Dean Emeritus, University of California Medical School and Professor of Medicine; formerly Professor of Clinical Pediatrics, University of California Medical School; formerly Visiting Pediatrician San Francisco Children's Hos-

pital, etc.; and William E. Carter, M.D., Director of University of California Hospital, Out-Patient Department, formerly Chief of Children's Clinic, University of California Hospital; formerly Attendant Physician, Los Angeles County Hospital, etc. 977 pages. Illus. Price, \$11.50, cloth. St. Louis: C. V. Mosby Co., 1942.

PATHOLOGY OF THE ORAL CAVITY. Lester Richard Cahn, D.D.S. Associate Professor of Dentistry (Oral Pathology), Columbia University; Fellow of the American Association for the Advancement of Science, Fellow of New York Academy of Dentistry, Associate Fellow New York Academy of Medicine. 240 pages. Illus. Price, \$5.50, cloth. Baltimore: Williams & Wilkins Co., 1941.

SYNOPSIS OF ANO-RECTAL DISEASE. Second Edition. Louis J. Hirschman, M.D., F.A.C.S., Ex-Vice President, A.M.A., Ex-Chairman, Section on Gastroenterology and Proctology, A.M.A.; Ex-President, American Proctologic Society; Chairman, American Board of Proctology, Inc.; Professor of Proctology Wayne University, etc. 315 pages, Illus. Price, \$4.50, flexible binding. St. Louis: C. V. Mosby Co., 1942.

SYNOPSIS OF MATERIA MEDICA, TOXICOLOGY AND PHARMACOLOGY. Second Edition. For Students and Practitioners of Medicine. Forrest Ramon Davison, B.A., M.Sc., Ph.D., M.B. Medical Department, Upjohn Company, Kalamazoo, Michigan; formerly Assistant Professor of Pharmacology, School of Medicine, University of Arkansas, Little Rock. 695 pages. Illus. Price, \$5.75, flexible. St. Louis: C. V. Mosby Co., 1942.

NIGHT OF FLAME. A Novel by Dyson Carter. 337 pages. Price, \$2.50, cloth. New York: Reynal & Hitchcock, Inc., 1942.

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NATIONAL FORMULARY, Seventh Edition. Completely revised and considerably enlarged. American Pharmaceutical Association. Price \$6.00. Easton, Pennsylvania: The Mack Printing Company, 1942.

Included among the new monographs in N.F. VII are Ammoniacal Solution of Silver Nitrate and Zinc-Eugenol Cement, two important dental preparations; and Cherry Juice and Raspberry Juice to provide a convenient method of preparing the official Syrups and making it possible for pharmacists to prepare them at any time of the year instead of merely during the fresh fruit season as was the case formerly when the syrups were prepared from the fruit. Preparations of the disodium salt of 2, 7-dibrom-4-hydroxymercurifluorescein, introduced under the proprietary name "Mercurochrome," are admitted to the new N.F. under the title "Merbromin."

Neocalamine, a new form of calamine which more nearly approximates flesh color, is included and formulas are provided for a lotion, phenolated lotion, and ointment of this drug. These new preparations are much more agreeable to use than those made with calamine and in time will probably completely replace them.

An important feature of the new Edition is a greatly augmented section devoted to materials and preparations for use in the Clinical Laboratory. Pharmacists will find this section a comprehensive guide to the reagents ordinarily used by the Clinical Laboratory and by the physician who does laboratory examination in his office.

Seventy-one articles, official in U.S.P. XI but not admitted to U.S.P. XII, have been added to the N.F. in order to provide standards of purity, quality, and strength necessary to their use.

Publication of the Seventh Edition of the National Formulary marks the first step in the continuous Revision program which has been adopted by the American Pharmaceutical Association in order to keep the compendium up to date with advances in pharmacy and medicine.

AMERICAN FOUNDATIONS AND THEIR FIELDS. 5th revised edition. Compiled by Genevieve Seybold. 274 pages, 12 tables, \$5.00, cloth. New York City: Raymond Rich Associates, 1942.

This volume is a comprehensive study of American foundations and family trusts which have made grants to outside agencies and individuals. It brings up to date the survey of the same title published in 1939 by Raymond Rich Associates, and earlier editions issued by the Twentieth Century Fund.

Primarily a reference handbook, it presents basic data, listing the chief foundations, reporting their capital assets, and analyzing the purposes for which they spend their incomes. All data have been checked and authorized by responsible foundation executives.

A convenient directory section gives the names and addresses of 314 foundations, including 9 reported for the first time, the names of their officers and trustees, the purposes for which the foundations were set

o, the year established, the methods of operation, the foundations' direct activities, their total capital assets, their total expenditures and their total grants for the year 1940.

The specific grants made by the foundations, totaling payments of nearly \$40,400,000 in 1940, are classified according to the fields in which the appropriations were made. The survey shows that Medicine and Public Health continue to rank first, although Education ranks a close second, and Social Welfare third, among the fields supported by foundations. Comparative figures showing the grants in various fields for the years 1934, 1937 and 1940 indicate highly interesting trends in the flow of foundation funds.

Other illuminating tables show the growth of the capital assets of individual foundations since 1934, until 1940 a total capitalization of \$1,073,572,367 was reported by 162 foundations.

Those who have the responsibility of investing college endowments or other large sums for philanthropic purposes will find of particular value an analysis of foundation investments, with amounts given in both dollars and in percentages of the total investments. A new feature of this edition is a comparison of foundation investment portfolios for 1937 and 1940.

Another new feature is a survey of support available for education through student loan funds. The thirty-two funds under survey made loans totaling \$1,588,740 during 1940 applicable to tuition in more than one institution.

The volume, a compact library of information concerning foundation activity, provided by the foundations themselves, brings together much scattered data and also presents a considerable body of useful material that is available in no other form.

DIRECTORY OF MEDICAL SPECIALISTS. Certified by American Boards. Pages: xvi + 2,495. Price: \$7.00. New York: Columbia University Press, 1942.

Since the first edition of the "Directory of Medical Specialists" appeared, more than four thousand doctors have taken their Board examinations. This second edition, therefore, contains complete information about more than eighteen thousand certified Diplomates. And not only is the book larger by that many new diplomates, but also the information about each doctor more complete than it was before.

This book is not only a directory to medical specialty but is also an index to a trend in medical development—one which has grown more than twenty-five per cent in the last two years. Needless to say, the value of this book to a nation at war is tremendous. To Washington officials, to army and navy administrators, as well as to local and regional selective service executives, the "Directory of Medical Specialists" is becoming increasingly useful.

A separate section is devoted to each American board, with both a geographic and a biographic listing of its Diplomates. In addition, there is a complete alphabetic list of all the Diplomates. In this list there

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are addresses and indications of specialty certification while in the geographic section complete biographic information is given. The organization and examination requirements of each of the American Boards are explained in full.

All these features make the Directory unique and invaluable to doctors (specialists or general practitioners), hospitals, social agencies, libraries, medical societies, business organizations, etc. It will help hospital officials pass on the ability of candidates for positions. It will provide medical society officers with authoritative lists. Family physicians can form accurate judgment of the qualifications and ability of specialists in any branch of medicine for the benefit of patients. In short, it has so many practical uses that it is certain to be an indispensable reference tool for thousands of individuals and organizations.

LITTLE WHITE LIES

The prime dilemma through all medical history has been whether to tell the truth to a fatally ill patient.

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Patients themselves usually say: "Tell me the truth, Doctor, I'd rather know, and I can take it." It is doubtful, however, whether even the sturdiest wants to have a death warrant read to him.

This much seems incontrovertible: the physician who discovers or diagnoses a hopeless ailment must transmit that information to some responsible member of the family. To tell the patient that he is doomed to an early death, however, seems pointless, for it is impossible to see any good that could come out of such a procedure except in a small group of cases in which rearrangement of a man's business affairs might make for financial security in his family. Even in these cases it would seem sufficient to tell the patient that he would be too sick to carry on his business for a long time and that he should adjust his affairs accordingly.

To transmit a verdict of inevitable death under any other circumstances, however, appears utterly without justification except perhaps the abstract one of rigid truthfulness, no matter what the cost. Since the emotional state of the patient is so large a factor and since the hopelessly sick patient has so few comforts, there would appear to be no justification for taking from the tiny reservoir still available, that one last blessing—Pandora's Box.—*The Journal of the Medical Society of New Jersey*, October, 1941.

CASE HISTORY No. 104

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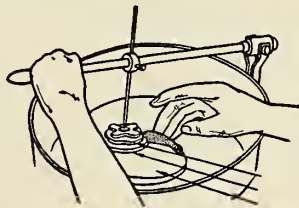
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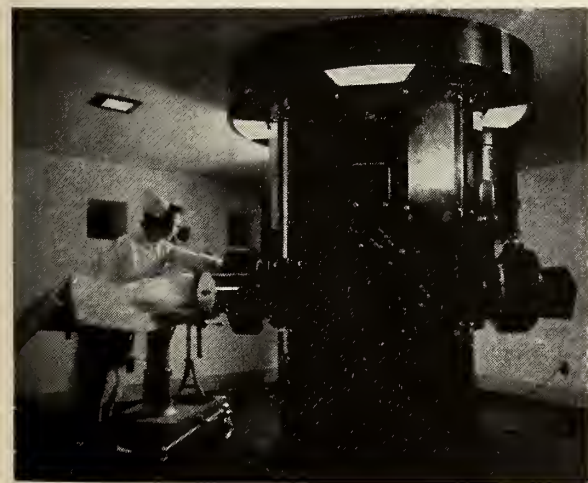
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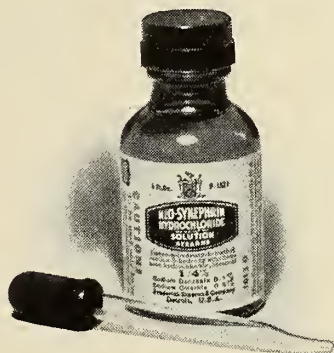


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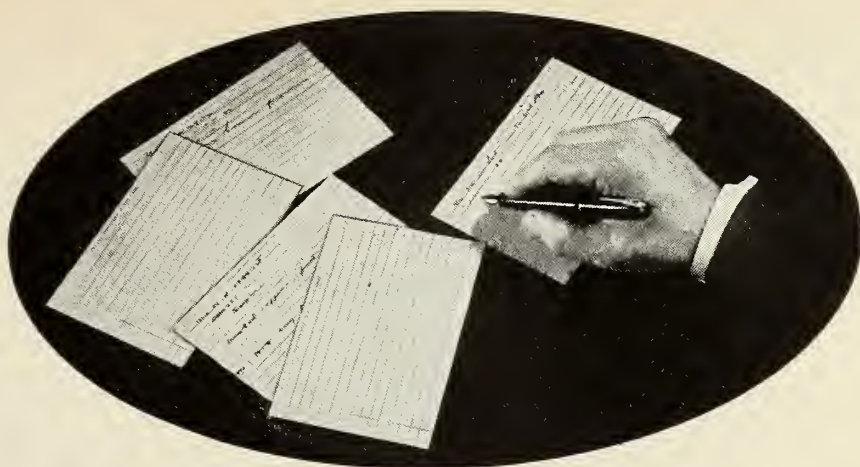
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**J.A.M.A.*, 93:1110—October 12, 1929

Brückner, H.—*Die Biochemie des Tabaks*, 1936

***The Military Surgeon*, Vol. 89, No. 1, p. 5, July, 1941

****ibid.* p. 5

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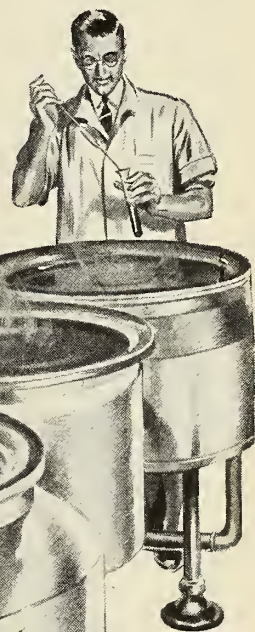
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THE ORGANIZATION AND FUNCTIONS OF THE MEDICAL DEPARTMENT OF THE UNITED STATES NAVY

CAPTAIN FREDERICK R. HOOK (MC) U.S.N.
Washington, D. C.

ALL activities of the Medical Department of the Navy come under the direct supervision of the Bureau of Medicine and Surgery, which was established by law in 1842. The activities of the Bureau are organized along functional lines, to include eleven divisions. These are:

1. The Division of Administration.
2. The Division of Personnel.
3. The Division of Dentistry.
4. The Division of Physical Qualifications.
5. The Division of Preventive Medicine.
6. The Division of Aviation Medicine.
7. The Division of Matériel and Finance.
8. The Division of Inspections.
9. The Division of Planning.
10. The Division of Publications.
11. The Division of Red Cross and Veterans' Administration.

To make any attempt to discuss the setup of these divisions would be entirely too time-consuming, and I am afraid uninteresting. I shall limit my remarks chiefly to the problems of personnel, and to our plans for the care of battle casualties.

Briefly, the functions of the Naval Medical Corps can be listed under four headings:

1. The proper selection of personnel.
2. The care of the sick and injured.
3. The maintenance of physical fitness of our entire personnel.
4. The elimination from the Service of the unfit by retirement or by medical discharge.

The Navy is made up of the Fleet with its sup-

Read at the War Session of the American College of Surgeons, Minneapolis, Minnesota, May 1, 1942.

JULY, 1942

porting bases. It takes years to build a battleship and months for the smaller ships. This gives us a chance to plan ahead, and to build up personnel against the day of commissioning. Modern navies consist of many different types of ships. With the time at hand, it would be impossible to dwell at any length upon the individual functions of the medical personnel of these various units. We know, however, that the mutual support of these various highly specialized units is of the greatest importance in battle, and that the highly differentiated functions of a modern naval medical service indicate that the duties of the medical officer on recruiting duty, in the laboratory, in the surgical operating theater, in the field, afloat, in the diving unit, and in the air, all converge toward the same objective, that of maintaining a readiness for wartime conditions.

The policy of our country in the past has been to maintain a small standing Army and Navy; therefore, when a national emergency arises, our armed forces merely serve as a nucleus around which a much larger number of civilians and reserves crystalize. For this reason it is fitting that the regular service medical officer, particularly in the latter half of his career, should develop a well grounded knowledge in military medicine. When war comes he must be prepared to surrender his purely professional duties to an equally competent, available reserve officer, and assume duties requiring long military experience.

The onset of our present building program found us with 875 regular medical officers on active duty. This was somewhat under our allowance, which is six and one-half medical officers

per thousand of enlisted and officer personnel in the Navy and Marine Corps. With the rapid shore expansion and commissioning of new ships, it soon became necessary to call to active duty, members of our reserve force, which had been built up through the foresight of our policymakers during the past few years. At the present time there are more than 3,000 regular and reserve medical officers on active duty with the Fleet and on Shore Stations. Should recruiting continue at its present rate, it will be necessary to more than double this number by the end of the year.

Doctors may obtain commissions in the regular service in two ways: (1) graduates of Class "A" Schools who have had an internship of one year may be commissioned as Junior Grade Lieutenants, providing they meet the physical requirements and pass the professional examinations; (2) recent graduates of Class "A" Schools may be appointed as Acting Assistant Surgeons and after serving a year's internship in a Naval Hospital then be commissioned as a Junior Grade Lieutenant.

The Medical Corps of the Naval Reserve consists of two classes: (1) the Volunteer General Service Class MC-V(G); and (2) the Volunteer Special Service Class MC-V(S). The physical requirements for appointment in the General Service Class are the same as in the Medical Corps of the Regular Service except that the age limit is thirty-five instead of thirty-two as in the Regular Service. The maximum age limit for appointment in the Special Service Class is fifty years. Officers in this class are not required to pass such a rigid physical examination and are recruited for shore or hospital ship duty only.

The rank a candidate obtains upon entering the Reserve force depends chiefly upon his age and professional qualifications.

The staffs of our naval hospitals are now made up chiefly of reserves. Knowing of the great sacrifices that many of these officers are making in abandoning their civilian work, it has been a revelation to us in the regular service to see with what enthusiasm they have turned to on their military duties. Their zeal and industry has brought new and refreshing blood to our ranks.

In addition to the medical reserve officers in the General and Specialists classes, we also have 111 Medical Specialists Units. Each of these units consists of eight medical and one dental officer.

The specialties represented are: general surgery, orthopedic surgery; internal medicine; psychiatry; urology; otolaryngology; roentgenology; and prosthodontia. These units are the nuclei for assignments to naval hospitals, hospital ships and other medical department activities, requiring a complete medical corps organization. Practically all of them have been called to active duty since the onset of the national emergency. Many of these units were organized at teaching centers throughout the country, and several of the principals are key members of medical school faculties. The Bureau appreciates the need for a continuous flow of medical school graduates, and intends to disrupt teaching activities as little as possible; for this reason each principal member has an alternate, who, at the time of mobilization, proceeds with his unit, if for any reason the principal cannot go.

It is estimated that in addition to the specialists in the various branches now on active duty, the following number will be necessary to care for the Navy's needs:

Allergists	34
Anesthetists	85
Cardiologists	40
Clinical Pathologists	125
Dermatologists and Syphilologists	180
Gastro-enterologists	30
General Operating Surgeons	500
General Operating Surgeons Assistants....	150
Internists	550
Pediatricians	175
Neurologists, Psychiatrists	125
Obstetricians and Gynecologists	125
Neurosurgeons	100
Radiologists	125
Ophthalmologists	50
Ophthalmoto-otolaryngologists	200
Orthopedic Surgeons	175
Maxillo-facial Plastic Surgeons	40
Thoracic Surgeons	50
Tuberculosis Specialists	45
Urologists	100
Public Health Specialists	32
Flight Surgeons	120
Aviation Medical Examiners	91
Tropical Medicine Specialists	20
Deep Sea Diving Specialists	32

The rapid expansion of the Navy has also produced a great need for enlisted medical personnel. It has been the policy of the Navy in the past to allow men to transfer voluntarily, to the Fleet Naval Reserve Force after sixteen to twenty years of service. The services of these men on re-call to active duty have been invaluable. By increasing the number and capacity of our Hospital Corps Schools we have been able to produce a sufficient number of non-technical hospital corps-

men for ordinary duties. There has been, however, insufficient time to train men in the highly technical ratings, so again we have had to turn to our civilian friends for their x-ray technicians, dental mechanics, laboratory technicians, basal metabolic technicians, male nurses from psychiatric institutions, embalmers, et cetera.

The fire power of a ship, to a great extent, determines its fighting ability. A ship to be 100 per cent efficient must have a mentally and physically fit crew, as nothing disrupts organization aboard ship more than men on the sick list. Months are required to develop a well trained crew; a gun's crew presents teamwork at its highest state of efficiency, every man being a specialist in his assigned task. With this in mind, psychiatrists and psychologists are on duty at naval training stations to weed out the mentally unfit. Knowing that physical examinations alone frequently fail to reveal incipient and arrested pulmonary tuberculosis, we are now x-raying the chests of all recruits upon their arrival at the training stations. This is done with 35 mm. films. All of our naval personnel has now been actively immunized against tetanus by the use of tetanus toxoid. Yellow fever and typhoid fever immunizations have also been completed. Recent research work done by our epidemiologic units at naval training stations shows that, contrary to the generally accepted belief, a large percentage of recruits are susceptible to diphtheria. If further work along these lines substantiates these findings, it is probable that all Schick positive men will be actively immunized against diphtheria.

Hospital expansion in the Navy has kept apace of the personnel growth, so that now we have over 20,000 beds available. This number will continue to increase as present building and proposed units are completed. Modern warfare calls for mobility, and for this reason mobile base hospitals have been devised. These are 500-bed units, several of which have already been organized. Two of these are now functioning on our island bases. The first of these units assembled was set up on an island base where it functioned for several months; it was then dismantled, packed, and transported to another island base, a distance of 900 miles, where it was reassembled and resumed functioning within a few weeks. Strictly speaking, this is not a mobile hospital, but it probably approaches mobility about as near as any self-supporting base hospital can. We

have our smaller well equipped field hospital units which accompany our field forces; these are entirely mobile.

The geographical distribution of our forces takes them to all extremes of temperature and climate. Excellent courses in tropical medicine have always been a part of the curriculum at the Naval Medical School, and many of our medical officers have had duty on tropical stations, so we have little to fear from this angle. Our experience in the colder climates, however, is less extensive. There are many things that we must learn in regard to clothing, food, housing, et cetera. We must find a way to maintain the efficiency of our personnel in subzero weather. We are also mindful of the questions of sanitation and preventive medicine in our new bases, and are indebted to the Public Health Service for the aid they are giving us along these lines.

Ventilation aboard ship has been, and continues to be the basis of a great deal of study. Air conditioning ashore is a fairly simple matter, but aboard ship the equipment is costly and bulky; so far it has not been entirely satisfactory. Unless fresh air can be furnished to the crew at their fighting stations and in their living quarters, their efficiency is bound to suffer.

The medical department has had its share in developing diving to its present state of efficiency, so that now dives of more than 400 feet are made, and work by divers accomplished beyond 300 feet. The experience gained in this subsurface work is now being put to use in attempting to solve the problem of how to keep our pilots functioning efficiently at the other extreme, i.e., above an altitude of 37,000 feet.

In connection with the Army, the American Red Cross, the Medical Division of the National Research Council, and civilian groups, much research work has been done on the preparation of blood plasma. This has resulted in standardization of preparing and packaging of dried plasma. This plasma will be available for use on all ships.

The anesthesia problem aboard ship is a rather perplexing one. Spinal and local anesthesia have long been favorites of the naval surgeon, due to the fact that he seldom has a trained anesthetist to rely upon. During peacetime when the ship is open and ventilation is adequate, ether has been used freely, but working under battle conditions with compartments closed up tightly, ether or any of the explosive gases would be extremely dan-

gerous to use. For this reason, operations that cannot be done under local, spinal, or intravenous anesthesia, will probably require the use of chloroform.

Medical Tactics—Battleships are heavy and comparatively slow. They are built to take punishment as well as to deal it out. A ship to be able to fight must first be able to float, and for this reason Naval Architecture has developed an extensive system of compartmentation which has greatly increased the floatability of these ships. This was well demonstrated in the Bismarck which, after having been crippled by aerial torpedoes, took an unbelievable amount of punishment before she could be sunk by gunfire. In battle, water tight integrity of compartments is of the greatest importance. In the past few years we have heard a great deal about damage control aboard combatant ships. With it have come drastic changes in the arrangement of the medical department for battle, and its function during action. The care of casualties during battle must be considered as a phase of damage control, for matériel damage and personnel damage go hand in hand.

Consistent with the importance of damage control on combatant ships, two fundamental principles are enunciated:

1. The water-tight integrity of the ship, regardless of the wounded, must be preserved.
2. Fire-power, as delivered by the batteries of the ship, regardless of the wounded, must be maintained.

The medical personnel aboard a capital ship in wartime consists of three medical officers and one dental officer. There is also one hospital corpsman for each hundred of the ship's company. With a wartime complement of 1,800 to 2,000 men there will be 18 to 20 hospital corpsmen aboard. This number will not afford a skilled medical attendant for each compartment. In men-of-war only the vulnerable and fighting parts of the ship are protected by heavy armor; this does not include the sick bay, which is above the water line, and therefore not protected by side armor. Under battle conditions this station must be abandoned.

To insure the services of medical personnel after action, and to conserve the medical and surgical supplies and equipment, it is necessary that

they be distributed in two or more protected areas behind armor. All compartments being tightly closed during battle conditions, relative immobility is imposed upon all personnel. This time is utilized to prepare matériel and equipment for the post battle rush and to drill hospital corpsmen in their duties. In our peacetime drills we try to conceive of every possible type of damage that the ship and its personnel might suffer. It is not difficult to simulate many of the states of matériel damage to the ship and its equipment. We cannot, however, produce mutilating wounds, severe states of shock, burns, et cetera, just for training purposes and, therefore, feel that the physical standards and professional qualifications of our medical personnel, both commissioned and enlisted, must be maintained at a high level if our wounded are to be assured of the best possible treatment.

The inability of medical personnel to get to the wounded at their battle stations makes it necessary that all members of the crew be instructed in first aid measures. Men are taught to apply occlusive dressings properly, to apply a tourniquet to a leg or arm, to apply a dressing to a burn, to recognize the need for immobilization of a fracture and the care in moving men with fractures. They are also taught to relieve suffering by the use of morphine supplied in syrettes. Many of you will raise an objection to putting this potent drug in the hands of laymen. If the wounded are to get relief from pain early there is no other alternative, as it may be hours before they can be reached by a member of the medical department.

Prior to battle, first aid material in metal boxes is distributed to every vulnerable part of the ship, where it will be available for self or mutual aid. The supplies depend upon the number of men in the compartment, the hazards of the position, and the type of casualties anticipated. In the turrets and other large compartments where accidents are apt to occur, selected lay members of the crew are especially trained in first aid measures, and it becomes their duty to direct the handling of the casualties. Two per cent of the ship's crew is instructed in transportation of the wounded; these men are usually the ship's bandsmen and they make up what is known as the ambulance party.

During action aboard a combatant ship all watertight doors and hatches are controlled by

central station. When matériel damage occurs in any part of the ship, and it is possible to modify this tightly closed condition of the ship, repair parties move to make such repairs as are possible. Accompanying each of these repair parties are one or more hospital corpsmen, and stretcher bearers. These men give what aid they can and when possible move the wounded to or toward the battle dressing station.

The maneuvering and preparation of a Fleet for battle may take hours or days; the battle itself seldom lasts more than a few minutes. The constant menace from submarines and from the air, however, keeps the ships in a state of perpetual readiness for battle. Immediately upon cessation of battle or during a lull in action, the medical department has its greatest opportunity to contribute directly to the military efficiency of the ship. This is done by:

1. Restoring to fighting efficiency the wounded men made ill by prevailing battle conditions, and those incapacitated by the milder effects of chemical agents. These will find their way by designated routes to the proper dressing stations.
2. Clearing the gun and other battle stations of the more seriously wounded. These must be helped or carried to the dressing or chemical decontamination stations.
3. Treating those whose injuries incapacitate them for duty.

It is of the greatest military and humanitarian importance that all severe battle casualties be removed from fighting ships at the earliest possible time. Upon cessation of hostilities, stretcher parties are sent out to all parts of the ship, and the wounded brought into the battle dressing stations where they are sorted out. Dressings are adjusted and wounds examined for hemorrhage. If tourniquets have been applied they are removed and active bleeding controlled by compression or by tying off the bleeding vessel. Prophylactic shock treatment is instituted by giving hot drinks, food, and morphine. Fractures are splinted and prepared for transportation. If shock is present, blood plasma transfusions are given and the patient is not evacuated until this condition is well under control. Chemotherapy is instituted at this station, and casualties are classified as to the priority of evacuation. Major oper-

ations that can be deferred with safety are not done at the dressing stations aboard combatant ships, but await more favorable conditions in a hospital ship or shore station. It is, however, not only possible, but probable, that owing to the lack of supporting hospital facilities, definitive treatment of the wounded must be undertaken aboard combatant ships, and for this reason, equipment and matériel are always at hand, and peacetime training of personnel always embraces this possibility. With this in mind, one of the medical officers assigned to each capital ship is a qualified surgeon.

Wounds of naval warfare are characterized by their great extent, their multiplicity, and the frequency with which secondary as well as primary missiles and pieces of clothing are driven into the tissues; sepsis may be expected in all of them. Burns have always been common, but are even more frequently seen in this modern type of warfare. They are due to blasts from exploding shells and bombs, burning powder, cordite, or fuel oil. A bomb exploding in a compartment below decks will set up a blast wave, which in its search for an exit, will proceed along passageways and air ducts, and may cause burns at some distant part of the ship. The lightest type of clothing will protect against these waves. Flash helmets and gloves made of light material will also protect the face and hands.

New weapons of destruction are constantly being developed which call for newer methods of prevention of casualties. The efficiency of aircraft has made it necessary to build heavier armor in decks of capital ships, and to provide more protection for gun's crews on the upper decks. Bombs missing ships but falling in the immediate vicinity, explode with such violence that glass in port holes is shattered with resulting casualties in the compartments. This means that new ships must be built without portholes, and those in the older ships blocked out. Mines exploding beneath ships, and bombs or torpedoes exploding below decks, cause such a violent upheaval of that part of the ship, that not only are men's feet and legs fractured, but the upward thrust against the deck overhead also produces severe intracranial damage. For this reason men not actually at work should spend as much time as possible in the reclining position rather than sitting or standing.

In battle, the casualty list of a man-of-war may

be comparable to that of a regiment during a hard drive. The medical department of the ship must be entirely self-sufficient. A six months' supply of medical and surgical stores are aboard at all times. Light armored forces, destroyers, submarines, and cruisers are likely to be sunk or escape with little damage. Air force casualties may be heavy, but they will require little treatment or evacuation. The same can be said for submarines. We are not greatly worried about gas casualties aboard ship as this type of shell makes an uneconomical load for aircraft; certainly, the Fleet that has control of the air need not fear casualties from this source. Decontamination stations, however, are established aboard all ships.

As a working basis in the past we have expected that two fleets of equal strength would probably inflict about 20 per cent casualties on each other before one or both withdrew. As the size of the fleets increase, the percentage of casualties as a rule will decrease. These estimates have been based on past wars; with the present efficiency of submarines and aircraft they may be entirely too low.

In practically all naval battles, statistics have shown a high ratio of killed to wounded, it being placed at about 1 to 1. Drowning is a major factor in maintaining this ratio; the high mortality rate in turret accidents is also a factor. Individual ships will show a wide variation in the percentage of the cause of deaths; for instance, on one ship practically all deaths will be due to shell wounds, on another it will be all burns, and still another all drowning. Drowning is responsible for more deaths than all other causes combined.

There will always be a marked discrepancy between the force casualty rate and the maximum casualty percentage for individual ships, as some ships will be hit heavily, while others will escape entirely. The wounded percentage should be given primary consideration in developing medical plans for action. Allowing a margin of safety, we will assume that the maximum number wounded on individual ships will be 15 per cent of the ship's complement. It is this maximum wounded rate of individual ships that determines the medical and surgical wartime requirements for this type of ship, while the force wounded rate serves as a basis for computing the evacuation facilities, and this figure is used in deter-

mining the bed accommodations to be furnished by hospital ships or shore stations.

Evacuation of the wounded from combatant ships is frequently a difficult problem. It may be by direct transfer from ship to a shore station, or indirectly by the use of small ambulance boats. Casualties may also be transferred to other vessels such as hospital ships, hospital transports, or other combatant ships. When conditions permit, it may be possible to evacuate the severely wounded by air ambulance. In this war as in the last, hospital ships enjoy no immunity from attacks by the enemy. Our Government in 1918 found it a safer procedure to bring home the wounded from France by returning convoyed troop transports, than by the use of unconvoyed hospital ships.

Hospital ships are of two types—Class "A" and "B." Class "A" or fleet hospital ships in times of peace, travel with and serve the Fleet as floating hospitals. During action their function remains about the same, but for many reasons they cannot be in the immediate neighborhood of the action. Their location, therefore, will depend to a great extent upon the distance of action from an established naval base. Class "B" hospital ships are designed to function primarily on the lines of communication, transporting medical matériel and personnel to the theater of operation, and evacuating the wounded from that area. The longer the lines of communication, the nearer this class will approach that of Class "A" in equipment and personnel. One of the prime requisites of a hospital ship is its ability to take on patients speedily from another ship at sea, and to evacuate them to a hospital on shore.

From what I have already said I think you will agree that the problems involved in Naval Medicine are quite different from those in civil practice. To get an idea of the variety of our work, I would have you visualize the Fleet as being made up of practically every conceivable type of combatant ship, and each type of ship presenting different problems, from a medical standpoint. Battleships are nothing more than highly mechanized, mobile, fighting fortresses, whose guns possess tremendous power of destruction. Unless these guns are manned by healthy, well trained, alert crews, their destructive power to a great extent is impaired.

The crews of these ships are made up mostly

of young men, many of them still in their teens. They are fine boys; they come from our homes throughout the country. They are, however, subject to all of the woes of youth, just as other boys are; they get homesick and seasick, they have family troubles and bellyaches, and some are simply slow in adjusting to service conditions. So it is that the Medical Officer's job aboard ship is a bit broader than merely caring for a lad with a cold or an acute attack of appendicitis. His relation with the crew puts him in a position in which he can be of inestimable value in maintaining the morale and fighting efficiency of the men.

The Medical Department serves the line as a part of the military team, and to function properly, must adapt itself to the conditions created by military tactics and operations; therefore, it is essential that those who serve as a part of the medical units should have a good working knowledge of line tactics. Some of our theoretical peacetime training ideas we know have not proved out under battle conditions, and it has been necessary for us to revise our medical tactics so that they serve the line to its best advantage; this we are prepared and glad to do at all times.

Many of you, I am sure, would be interested in knowing how the casualties were handled in Pearl Harbor. This I cannot go into in detail at this time. To give you an idea of the problem that presented itself on December 7, I would have you visualize a well organized and staffed 500-bed hospital in your own community, and have the census of that hospital more than doubled with acute surgical cases in a period of three hours. Remember, also, that a large number of these patients were unconscious when admitted to the hospital and that the majority of them were suffering from some degree of shock.

Mass treatment must always be a compromise, the individual being sacrificed for the good of the many. Undoubtedly, lives were lost that could have been saved under different circumstances. To have been completely prepared for such an influx of patients would have been an utter impossibility. The information I have received from Pearl Harbor is to the fact that the Medi-

cal Departments of both the Army and Navy handled the difficult situation as well as it was possible to do under such trying conditions. I had the opportunity of seeing practically all of these patients seven weeks after the blitz and was amazed at the rapid recovery most of them had made.

May I ask you to keep in mind constantly, the fact that we are now in mortal combat with inhuman, ruthless enemies, who believe that they are fighting for their very existence? I wonder if history will not record, that it is we who are now fighting for our very existence?

To you who have lost confidence in the heavy battleship, I say be patient and remember that there is no ship built that cannot be sunk, if the attacker is willing to pay the price. With adequate protection from the air, under and on the surface of the sea, the battleship will have its day, and I feel confident that it will be in on the kill.

It was my good fortune to have served throughout the first world war in France as a battalion surgeon in a Marine organization that was brigaded with the Army. This experience led me to believe that the courage and fighting ability of our men, though inadequately trained in many instances, was unsurpassed. During the ensuing years I have gotten a fairly good idea of the capabilities of the sailor-man. The almost unbelievable devotion to duty and the acts of heroism performed on December the 7th was no surprise to me; I would have expected it of such men.

Let us not be complacent, but also, let us not be blinded or frightened by the flood of propaganda disseminated by our foes, both at home and abroad. Let us be honest with ourselves and admit to the strength of our enemies, and be aware of the tremendous task ahead of us. There has never been a time in the history of our country when unity of purpose was so important as it is at the present time. It is not enough that the Armed Services work together smoothly; our civilian forces must also be behind us to the last man and woman if we are to win this war and to continue to exist as a free nation.

THE ROLE OF THE HOSPITAL IN CIVILIAN DEFENSE

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MODERN warfare as introduced by the axis powers has produced certain expressions which have been used so much as to seem nothing but banal platitudes. Such terms as "total war" and "blitzkrieg" are often heard now, yet they were unknown in previous wars. Obviously, modern warfare has introduced some new techniques and requires radical changes in our conception of warfare.

Total war means exactly what it implies. Nations now go to war with every means at their command. No longer do the armed forces alone carry on the war; every man, woman and child is involved in some way. Civilian casualties are frequently greater over a period of time than those of the armed forces. Disruption of the activities of the civilian population may serve the enemy as effectively as overcoming army or navy units. War casualties often become as serious a problem to the hospitals at home as they are to the hospitals in the field of battle. Epidemics at home may well be as serious a handicap to the prosecution of the war as epidemics in the armed forces.

The "blitzkrieg" or lightning war means that like lightning it may strike anywhere with sudden fury. The element of surprise is paramount here, unleashing an attack with lightning rapidity where least expected. Finding a community unprepared, it is easy to play havoc on its industries and its people. Incendiary bombs start blazing infernos which spread rapidly, bringing death and destruction all out of proportion to the actual bomb load employed.

In the early days of the blitzkrieg on Great Britain the casualties were high, the damage extensive. If the armed forces were relatively unprepared how much less so was the civilian population. Out of the chaos there gradually developed a system of civilian defense, a plan of action based on organization, training and discipline. Military strategy is a science of long standing but now there developed a new science of warfare—civilian defense.

At first there was a tendency to regard bomb-

ings in the cities as disasters which could be handled as any other disaster. This proved inefficient and impractical. Under war conditions, with widespread bombing, it is often impossible to obtain aid from neighboring communities. All too often they were also hard hit. There is not time to leisurely salvage what remains when the enemy may return again and again. It became evident that so far as possible each community must be self-sufficient. Peacetime disaster relief methods would not suffice.

The medical care of civilian casualties became the duty of the medical division of civilian defense. Organizing the medical resources of the community gave rise to the development of what became known as Emergency Medical Services. Experience soon demonstrated that the only practical plan was to base the medical units in the hospitals. In other words, the hospital is the very cornerstone on which the emergency medical services rest.

This represents a distinct departure from the usual peacetime disaster relief organization. The older system of putting medical teams into the field, totally unrelated to hospitals, is not feasible. The hospital staff with its nurses and other trained personnel represents the only logical system. These people are accustomed to working together, and the staff represents a balanced organization. It is important, too, that certain personnel be designated to remain at the hospital to care for incoming casualties. The tendency to strip the hospital of its staff in an emergency must be guarded against. Surgeons and others with special training may be of comparatively little value in the field but are of inestimable value in the hospital. Less skilled persons may serve as well in the first aid posts.

The hospital is also the logical place to obtain supplies. There should always be on hand an ample quantity of equipment and medical supplies. It is not intended they should have vast stores of unused material but rather a sufficient stock on hand to handle any emergency. Contrast this again with the unrelated first aid posts that must of necessity have a store of supplies

Read at the War Session of the American College of Surgeons, Minneapolis, Minnesota, May 1, 1942.

which may never be used. Multiply this many times and it becomes obvious there must result a serious shortage of such equipment and supplies.

The cost of hospitalizing persons injured as a result of enemy action will be borne by the federal government. A sum of money has already been set aside for this purpose. It is also proposed to reimburse at least in kind, for supplies used in caring for the casualties. Rates to be paid for hospitalized patients have been established. The regional medical officers for civilian defense are at present setting up the administrative machinery.

Publications of the Medical Division of the Office of Civilian Defense have outlined the approved method for organizing the hospital staff into field units. They have also indicated the equipment and supplies which will be found suitable for first aid posts and casualty stations. It should be emphasized here that casualty stations are to serve as hospital substations, located in suitable buildings in areas which may be remote from the hospital and not otherwise adequately served. They may act as filtering stations to prevent overloading the hospital with nonserious cases.

In certain vulnerable target areas it may be necessary to evacuate the hospitals at any time. This may be a partial or total evacuation. It may well be necessary to remove chronic cases from receiving hospitals to make room for the reception of casualties. On the other hand, the more protected hospitals may be called upon to receive patients from evacuated hospitals. This means there must necessarily be a closer relationship between the hospitals, in some cases what amounts to an affiliation. Hospital administrators have a serious responsibility in planning now for any eventuality.

The program of the military in taking over the entire output of blood plasma from the commercial laboratories brings about the problem of securing sufficient quantities for the civilian needs. It will be necessary that all the larger hospitals, equipped with adequate laboratories, plan to establish a blood bank if they have not already done so. These hospitals having blood banks will need to expend their facilities to be prepared for any sudden demand either from their own or nearby communities. Recognizing this need the federal government, through the

medical division of the office of civilian defense, is prepared to offer consultation and advice to those hospitals considered as most likely to have demands made upon them.

The program for the development of extensive blood banks in the hospitals is more than a plan to meet emergencies. Blood transfusion is not a new procedure although many of the refinements of technique are recent developments. In the past, however, the blood transfusion was a tedious, expensive procedure, consequently, too often used only in extreme emergencies. With the proper collection, preparation and storage of blood or plasma it becomes a relatively simple and inexpensive treatment and need not be reserved for patients in extremis. The remarkably gratifying results obtained at Pearl Harbor were due in a large measure to the prompt and repeated blood plasma treatments administered to the casualties. This indicates that blood transfusions, either of whole blood or plasma, will become a more standard procedure in all hospitals. They must be encouraged to be prepared for it.

Practically every hospital has suffered the loss of staff members to the armed forces. It is quite certain there will be further losses. In spite of the hardships this works upon the hospitals, there is not one that is not proud its staff members are serving their country. More sacrifices will be made and made cheerfully to insure sufficient medical personnel for our army and navy. Necessarily, this will impose added responsibilities to those who remain at home. In addition to the increased load of caring for the sick there will be the need for preparing for emergency medical services in these days of total war.

Not alone in medical staff personnel are the hospitals being depleted. Nurses, too, are being called into the services until hospitals are finding it more and more difficult to replace them. Foreseeing the inevitable shortage of nurses and profiting by the experience of England there have been established in many hospitals under the direction of the Red Cross, classes for the training of nurses' aides. This program has been explained to you and yet certain misconceptions occur. It cannot be overemphasized that this is not a program designed to produce practical nurses. Wherever the program has been instituted, reluctant hospital directors and nurses have found themselves enthusiastic before the

first class is completed. These people are not being trained in a vocation but are women of independent income volunteering to aid in the hospitals without pay. Trained to work only under the direction of graduate nurses they increase the nurse's efficiency by doing certain routine tasks requiring no professional training. The hospitals have not yet explored the possibilities in this field.

Another advantage to the hospital gained by training nurses' aides lies in the field of public relations. Intelligent lay women from your community have an opportunity to learn at first hand what is meant by high standards of medical care, what safeguards the modern hospital provides for its patients. These women can and do carry the message to their friends which the professions themselves are too modest to boast about.

When the bombs fall on certain vulnerable target areas it is quite likely calls will come for medical aid to hospitals not at the moment involved. With this in mind it is proposed that a working group, to be used in such an emergency, be organized to move as a unit to the stricken areas. Here again a plan is proposed that, under civilian defense, civilian doctors be organized much on the lines of any army base hospital, although much smaller. Such a unit could move on short notice to bring temporary aid

wherever necessary. It is not planned they would need to go far from their home area, nor would they be called for extended service. At the same time the need for organization now is obvious. Provisions are being made for these physicians to go when and if needed with appropriate officer's rank, salary and traveling expenses.

These are indeed trying times for hospitals and the medical profession. Let it never be said that we shirked our responsibility. There is a very important job to be done and it will be done. It is not all blood, sweat and tears. Out of it already there has developed a closer understanding, a closer feeling that we are all for one and one for all. No longer can we indulge in the luxury of personal feuds, standing on our prerogatives and other such nonessentials. The luxuries, superfluities and *fol de rol* will be abolished. The principles and high standards need not be threatened. A return to the primary principles of medical care—unembellished though they be, cannot be anything but a blessing.

In the meantime rest assured, the hospital and medical affairs in the federal government rests in the hands of responsible people from your own ranks. Our duty is first to win the war; we do not feel it necessary to sacrifice our ideals or standards but rather that because of our ideals success is inevitable.

MAINTAINING STANDARDS OF HOSPITAL SERVICE DURING THE WAR

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THE standardization program for hospitals was developed following the World War. The minimum standard has not been essentially changed. However, special minimum standards have been developed for practically every professional department of the hospital. Most of them have called for additional personnel, equipment, space and money. We now take them as a matter of course in most hospitals and would hesitate to forego any of them.

In normal times, many of these services have been kept up with the help of interns, techni-

cians, students and the younger members of the staff at a comparatively small cost.

Many hospitals, because of their ability to obtain sufficient funds, have far exceeded the standards. Others, because of their teaching value, have been able to attract young physicians at nominal stipends for their services.

It is really remarkable how hospitals were able to carry on during the years of depression on the high plane established during the period of prosperity.

But now we are at war and if we are to continue to give "the proper care to the sick and injured" as this program is summarized in the

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Manual of the College, we must readjust our hospitals on the basis of the present and the immediate future. All factors must be considered and the basis for wartime service will differ in all parts of the country and in all communities.

All hospitals in the community will have to be considered together and the various departments will have to be considered on the basis of the whole institution. Much of the duplication of personnel and equipment will have to be eliminated. We must take our place as a part of the war program and endeavor to eliminate all who can be spared for war service from our organization. The tendency to hang on to all possible for our own hospital is not in the spirit of the times.

It will become necessary that certain procedures which have seemed to be absolutely essential in ordinary times will have to be modified and in many cases completely eliminated. We will not only have the obligations of taking care of our ordinary services, but we will have additional responsibility because of the fact that many of the doctors, nurses and others in the community will be called into the service. Home calls will be greatly limited and additional patients will require the services of the hospitals. It will not be possible for us to build new buildings. We will have to get along with what we have, and in many instances with much less than we now have.

But just how are we to maintain our standards of service during such a period? As time is limited, I am going to endeavor to give a few suggestions which may be of some service.

1. Hospital board members, administrators, members of the staff and heads of a department should obtain a copy of the "Manual of Hospital Standardization" of the American College of Surgeons and familiarize themselves with what is considered necessary to assure each patient entering the hospital complete scientific care, and with these standards in mind proceed to streamline the organization to assure such care with the least possible friction and full use of facilities.

2. A careful study should be made of the physical plant and where possible departments should be combined or eliminated so that each special laboratory, diet kitchen, nurses' station and service department may serve a maximum number of patients with the least possible effort

and expense. In many hospitals the space which is now used for nurses' and other employes' quarters could be used for patients.

3. The personnel of the institution should be carefully studied, to assure that maximum service is given to the patients by the professionally trained personnel and where possible in all departments lay workers should be trained to assist the professional staff so that as many as possible may be released for the service of our country. In many instances the wives of our employes who have been called to the service will be found most useful. These lay workers should be trained to work in a given special department and not transferred from place to place. Full use should be made of volunteer workers under trained supervision. Married nurses should be called into service in our hospitals, and in certain communities, convalescent patients and patients with chronic diseases should be cared for in homes or institutions outside of the hospital. All of the employes should be made familiar with the importance of the steps we are going to take, and all of them should be impressed with their responsibility. Those who are unwilling to cooperate and who are more interested in outside influences, should be eliminated from the hospital staff. The care of the sick is too important, especially at this time, to carry those who are not loyal either to the country or to the institution. We should be alert for signs of sabotage and espionage. In other words, we must have absolutely loyal employes under a strict democratic discipline to maintain efficient service.

4. We must see that our plant is in order. Necessary maintenance and repairs must be kept up. In view of the difficulty in obtaining certain supplies and equipment we are informed that it is to the interest of the war program that our storerooms have necessary replacements in stock to make repairs with the least possible confusion. It is not hoarding to fill our coal bins now. This will make more cars available for war purposes in the fall. In order to give the greatest possible service we should follow the suggestions which have been outlined by the American Hospital Association to be able to care for additional patients. The administrators should be familiar with the war program in the community but should recognize the importance of the hospital and keep tight hold on the reins as the hospital may become the most important agency in the com-

munity on a moment's notice. These are general statements but are, I believe, fundamental.

The Board and Administrator

The responsibility for any hospital program rests on the Board of Management and there is no place on hospital boards for men with selfish motives at this or any other time. The Board must function through a trained administrator. His responsibility, under this war program, is greater than in normal times. He must know about priorities, the trend in prices, the availability of commodities and keep supplies available not only for normal use, but for any emergency which may arise. There has never been a time when the hospital administrator needed vision, ingenuity and originality as he does now. He must lead and must have the coöperation of the staff and all departments if the hospital is to render its best service at such a time.

I now wish to make a few suggestions relative to the important departments of the hospital. First, the Staff:

It has been said many times that a hospital is no stronger than the staff. This is especially true in these times. The purpose of the whole organization is to see that each patient receives the treatment as directed by his doctor. In order to function to the maximum, the staff must now be relieved of the many details which have been performed by younger men who have been or will be called into the Service. Records are most important and if we expect them to be kept up, it will be necessary to provide dictating machines or secretaries to assist the staff. Most hospitals do not take full advantage of the record librarian and their assistants. Forms and records should be studied and all but essential information eliminated. In some institutions the patients's name and family history will be found in four or five places in the chart and many times the name spelled in different ways. Under present conditions, staff meetings should be held at regular intervals and all members should be required to attend.

Heads of departments of the staff will be called into the Service and it will be necessary to combine departments in order to carry on. It may be necessary in some communities, where the staffs are depleted, for men in active practice to assume resident duties for several hours of the day in order to maintain uniform service.

All of this calls for a chief of staff with executive ability and firmness. He should be loyal to the hospital and the management and should be appointed subject to the approval of the Board.

The care of the service patients in most hospitals with the exception of serious conditions has been the responsibility of residents and Junior staff members in normal times. This will now call for additional service on the part of the available staff. The staff will also have additional responsibilities for the laboratory, x-ray, physical therapy, etc. Under the standards, especially trained physicians are required to head these important departments, but under present conditions, if the specialists are called, available staff men should assume this responsibility or in many instances, one man will be able to serve several hospitals. Hospitals without interns and residents will be the rule rather than the exception, and staff members will need to assume responsibility and perform details which have been passed to these men. Much of the work can be eliminated without seriously effecting the hospital service.

The Nursing Department

The nurses have always carried the heavy load in the hospital. During the past twenty years, the standards of nursing service have been greatly improved. Supervision has been increased, hours have been shortened, the work formerly done by the young student nurse has been taken over by orderlies and maids and in many hospitals. Most hospitals have already felt the shortage of nurses and with the appeal from the government for additional nurses in the service, the hospitals, in order to be loyal, will have to train additional personnel to take the place of trained nurses. This will be best accomplished by training young women to work in certain departments under the supervision of the nurses and in some cases even lay persons who have been trained for such supervision. This will work best if these lay workers are kept in their particular departments and not transferred to different divisions in the institution. In some communities married nurses have been called into service, either on full time or for a short time a day to relieve regular staff members. Those in such service should feel that this is service to our country in time of war, and should not expect excessive compensation for such

work. Special nurses and maids, who have been trained to help in the care of patients, should be relieved from detailed clerical work by the employment of clerks and the volunteer helpers. The "Grey lady" movement is of great value in some communities, but has not been developed in smaller communities, as it should be. This is a good time to develop these volunteer agencies. The Red Cross volunteers are now helping in some hospitals. Use of special nurses should only be permitted where the care of the patients call for special care, and should *never* be used except for patients so ill that the doctor feels that he must have this special care regardless of the ability to pay. In many instances, it will be found that one special nurse is able to care for several patients. All hospitals should study the nursing service carefully not only to conserve time and labor within the institution, but to accept their responsibility in the nursing service of the community. Hospitals are in a position to aid in the first aid program of the Red Cross.

After many years of effort on the part of the National Nurses Organizations, the government has finally recognized the importance of helping hospitals in their educational program and is subsidizing certain institutions in this work. Most hospitals are unable to finance nursing schools. A number of the fifty nursing schools which have been closed in the State of Minnesota could be opened, if the hospitals were given additional funds for their educational program.

It seems that the nurses' courses should and could be shortened during these times, and I feel that the nurses organizations will find a way to bring this about. Nurses who have been out of practice for many years have found it of interest to come into the hospital for refresher courses in nursing procedures, and have been found to be most useful because of the experience they have acquired since leaving their hospital work. These women naturally appreciate the importance of the hospital's responsibility to the patient and the community beyond that which is expected of the young inexperienced nurse, and they feel honored to have an opportunity to serve in these critical times.

I have always advocated the highest standards in the education of nurses. For the past several

years, it seemed that this had been overdone, but I am sure under present conditions that these nurses with their exceptional training will be of great service not only in the service of the government, but in the supervision and training of lay personnel for the civilian hospitals and the nursing program of the community.

Dietary Department.—The Dietary Department is one of the important departments of the hospital. According to the standard, a trained dietitian is required at the head of this service. The dietitian and her assistants should begin now to train lay assistants for certain services, as it will be difficult to find a sufficient number to keep the service on a normal basis during the war. The dietitian should be relieved of the purchasing as much as possible, but at the same time should have sufficient control of same to insure the foods required for adequate scientific diet. We should investigate the equipment of this department and be sure that parts are on hand to take care of emergency repairs. The storeroom should be carefully watched and staple supplies be kept available as much as possible. As this department spends about one-third of the money in the average hospital, it is important that it be kept under careful control at all times.

The Engineer and Service Department.—We are warned to be ready for emergencies. Service departments under the engineer will have this responsibility. Our engineer should be qualified, first, by meeting the requirements of the licensing board, second, by complete understanding of all equipment and machinery and with sufficient ingenuity to make necessary repairs without dependence on outside assistance. The engineer should train his assistants to be able to function if he is absent from the institution. It is imperative that he have a complete understanding of the electrical and water supply, with all switches, motors, cut-offs and so forth, and he should be familiar with the regulations which will be set up in regard to blackouts and other wartime precautions. He should see that equipment is available for the immediate removal and protection of all patients if necessary, and to set up facilities for the admission of an unusual number of new patients. The matter of fire protection is important and the fire fighting equipment, signals and so forth must be understood by the entire engineering staff. The local fire

department and the State Fire Marshall are glad to help make such plans. The instructions relative to the control of incendiary bombs must be understood. The engineer has a major position in the hospital at this time, and his advice and council should be respected by the Board and the Administrator. If his authority is not sufficient to carry on his functions, his value will be lessened. Too often men without vision and training hold these important positions in the hospital. Good men above military age are available if we are willing to pay the price. A qualified engineer should be on the grounds at all hours and, under present conditions, enough men should live in the institution to assure complete protection. One reason I emphasize this department is that women will have to assume positions formerly held by men as janitors, kitchen helpers and so forth, so this will mean that the engineer, firemen, carpenters, painters, electricians and watchmen will be about the only group available and should form a sort of emergency unit.

Where unions are involved, we should endeavor to convince them of the tremendous responsibility of their members at this time, and to have hospitals considered as a part of the defense machinery. On the other hand, we must realize that the need for mechanics is such in defense work, that we must coöperate by paying wages commensurate with those paid in other activities where such men are needed. The men in this department should be trained to perform duties in other than their special department and to relieve in as many positions in the department as possible.

Housekeeping.—This is an important department of the hospital which is not always given its proper place. A good housekeeper will work closely with the nursing and dietary departments. Duties of maids in many instances may be arranged so the workers are interchangeable. In most institutions, the maids should work as a part of the nursing staff and be directly under the nurse in charge of the unit. The maids can do many things for patients which have been done by nurses. They can be trained for this work and be limited to duties not professional. In many hospitals, workers now known as nurses' aids are making beds and, in some instances, bathing patients. These women can carry trays and perform other duties under the

supervision of the nurse as well as cleaning work, all of which will help at this time.

Patient Help.—In many hospitals, we have convalescent patients who can be of help and will be glad to render service if they realize the importance of it as a part of the war effort. Some of the work which has been done by occupational therapy department is not of practical value. I think we could find duties for these patients which would contribute much to the smooth operation, and we should take advantage of all such individuals, and I do not think, in some instances, it would be improper to give them a small stipend for the service rendered to the institution.

Out Patient Department.—Another department of the hospital which is most important at this time is the Out Patient Department. Many patients who are now filling beds in hospitals could be cared for as out patients. However, as the younger men have carried the load so far as professional care is concerned, it will be necessary that the older members of the staff take this as a part of their responsibility.

Social Service Department.—The Social Service Department is important and will have unusual duties to perform. However, as there is a scarcity of trained social workers, it would be well to try to find volunteer workers to carry on some of this work, as many patients can be discharged from the hospital if their home conditions are arranged for their care. In most communities, there will be found a social worker or a public health nurse who can give instructions to volunteers. Those who have received the first aid and volunteer training of the Red Cross should be of great help.

I have only touched a few of the highlights. To summarize, I would say that the Board, the Administrator and the heads of the key departments of the hospital will have to feel that their responsibility in this war effort is in their own hospital and to their own community, and that we should relieve as many workers as possible to enter the war service. We should conserve our supplies and to be sure that we are ready for emergency; that all possible beds are available in the most convenient locations for the care of a maximum number of patients, and that the

acute hospital should be primarily for the care of patients who can not be cared for otherwise and that other units should be found for the care of those who do not need this active care; that the Public Relations Program should be carried on in such a way that the whole community will

appreciate the value of their local hospital; that our hospitals will work together so there will not be duplication in the way of equipment and personnel; and where there is competition, that it should be on a friendly basis and all of us work for the one thing—*The Winning of the War*.

MAINTENANCE OF ADEQUATE PERSONNEL FOR HOSPITALS

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THE maintenance of adequate personnel in hospitals is a currently pressing problem which admits of no solution by formula. This state of affairs is probably due to the fact that preparation for the existing emergency has had to develop so rapidly that clear-cut methods have not been available. Hospitals with their varied responsibilities and multifold necessities for all types of trained labor are finding it increasingly difficult to maintain their staffs at proper levels. This fact in combination with increased demand for service presents difficulties of considerable proportions. All groups of hospital employes are affected. With tendencies in recent years to employ young individuals, both male and female, the turnover at present in hospitals is exceedingly rapid, due to the fact that these individuals are being taken into armed services and defense industries.

For purposes of developing the subject, the matter of maintaining personnel in the professional departments will be treated first. There are two classes of professional employe principally affected, namely, physicians and nurses. The Surgeons General of the armed forces have agreed with Selective Service officials that interns in hospitals will be deferred for a period of one year. At present reckoning, therefore, hospitals are assured of intern service. Resident physicians of greater than one year's experience, however, will be hard to find after July 1. Local Selective Service Boards, however, have been co-operative, in this sector at least. The Office of Procurement and Assignment should be helpful in declaring certain resident physicians essential.

In those instances wherein the services of residents cannot be obtained, the attending staff members will simply have to assume the duties ordinarily performed by residents.

All hospitals have already felt the shortage of nurses. In some sections, particularly in rural areas, the shortage of nurses is acute.

Efforts at relieving this shortage may be grouped under three headings: (1) utilization of inactive graduate nurses; (2) the training of nurses' aids or ward helpers; (3) utilization of volunteer groups for limited nursing services.

The first method obviously will not completely solve the problem. It is, however, useful in making available nurses of graduate level, who, though not plentiful, represent a trained class and can soon be entrusted with responsibilities of supervisory grade. In the larger communities nursing organizations are appraising the inactive nurse facilities. Older graduates are going back into uniform. Refresher courses have been arranged for these groups, and the response has been gratifying.

The second method, namely that of training women at nursing aid level to aid in relief of a reduced graduate staff, is gaining considerable momentum. In this area the Work Projects Administration has undertaken training programs for this purpose. These classes have been held at three governmental hospitals in the Twin Cities. With the war at its present tempo, it is conceivable that this type of employe will assume some of the duties usually performed by graduate nurses. Graduates remaining in hospitals will act principally in supervisory capacity. Any hospital with its own staff can train these women creditably without use of governmental

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subsidy. A definite course of study, however, should be set up, and instructions should be explicit.

The third source of personnel with some instruction in nursing procedures are the volunteer trainees who are being trained under the direction of the Red Cross. Many women of all communities are anxious to serve in some capacity that is helpful to essential services. These women by proof of actual practice respond quickly to training methods. Classes for these individuals in this area have been conducted by graduate nurses of finished competence in nursing education. Already there is a considerable group of women available for this type of service.

The non-professional classes of personnel also represent considerable problem in the present emergency. The men in these classes of military age are leaving their jobs precipitately and in considerable number. The women are leaving to accept jobs at better wages in defense plants. The problem is not so complicated as with professional classes, due to less urgent need for

prolonged periods of training for these groups. Nevertheless, the turnover in these classes is bothersome. There seems to be only one solution, namely, the employment of older individuals. This procedure is more satisfactory than it may seem upon first glance. There are a great many people in advanced age groups who can handle any specific job creditably. Perhaps more time may be required, but older people are often more thorough and accurate than younger ones. The writer believes the older person quite acceptable for most non-professional jobs. There are also persons available in both sexes with minor physical defects who can perform creditably. This, of course, raises the compensation problem, but there seems to be no avoiding such at present.

In conclusion, it should be stated that the difficulties of maintaining hospital staffs during the present war effort, though troublesome, are not yet insurmountable. There are at least evidences of carefully analyzed effort in the direction of amelioration.

CONSERVATION OF PERSONNEL, SUPPLIES, AND LABOR

SISTER M. PATRICIA, O.S.B.
Administrator Saint Mary's Hospital
Duluth, Minnesota

TODAY, every alert administrator is conscious of the problem raised by the necessity of conserving personnel, supplies, and labor in the hospital. Though theoretically such conservation was always accepted policy in every well-run hospital and the desire of every administrator, its practical aspects left much to be desired. It remained for the present national emergency to awaken the interest and coöperation of other members of the hospital personnel and the medical staff in such conservation. All are keen for victory. Now is the moment for the administrator to seize his opportunity and, under the banner of patriotism, do for our beloved country what he has never been able to do for his own peace of mind.

The success of any program in the hospital must begin with a well-defined administrative policy. How shall the administrator build such

a policy on the subject of conservation of personnel, supplies, and labor? There are several sources of help open to him. Naturally, he will have in mind all the pet schemes he has never been able to put across. Lest these ideas be outmoded, he should check them against the current hospital literature. The magazines today are devoted almost solely to articles on the relation between hospitals and defense. Then, there is a wealth of inspiration and sound policy to be gleaned from conferences with other administrators such as this one which Doctor MacEachern has arranged for us today. A third and very fruitful source of knowledge is to be had in contacting the medical staff and hospital department heads and other hospital personnel, both professional and nonprofessional. This contact can be direct and personal or by written questionnaire. The personal approach yields greater returns, but it is so time-consuming that its use is impractical in all but a few cases. Incidentally,

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a trip through his hospital at night with the night supervisor is an eye-opener for most administrators. Finally, the administrator will need to organize and coordinate the information gained from all these sources into a definite policy of conservation for his own institution. Fortified by his own clear thinking, he will be ready to set up the conservation program and put it into execution.

The first step toward effective operation of a conservation program would appear to be a conference between the administrator and a very limited number of key people in his institution. Small numbers conduce to informality and hence freer expression of opinions. At this conference the administrative policy will be discussed and probably modified as newer, better ideas are presented. Tentative plans for practical application of the program will be advanced, discussed, rejected, or accepted.

The next step will be a full conference of department heads. Again the administrative policy will be set forth, as well as such plans for execution as were drawn up by the first group. If the subject of the conference has been included in the call to the meeting, the department heads should be ready to advance many ideas for the development and execution of the program. Before this group adjourns, the final outline for the enforcement of the hospital's conservation program should be drawn up. Care must be taken to avoid overlapping and duplication of effort and to assign definite responsibility for each phase of the program. A copy of the outline in writing should be available to each department head as soon as possible after the meeting. Upon receipt of this instruction sheet, each department head should call a meeting of the personnel of his department to acquaint them with the plans of the administration and enlist their enthusiasm and support. The best psychological approach with this group will undoubtedly be the patriotic theme.

That this paper should bring to you some worth-while ideas on this subject of conservation and not be a mere recital of what you all know better than I, I have sent out a number of questionnaires. One group went to administrators throughout the country, and their response was gratifying. Another different group of questions I gave to the medical staff of our hospital and

still another to the department heads and all other personnel. The doctors were interested and gave many good suggestions. Because there was no verbal explanation given to the nonprofessional personnel, the percentage of response was not high. What follows in this paper is the result of information gleaned from these questionnaires.

Personnel

Intern Shortage.—Have doctors assist each other at operations.

Give interns stenographic help. Volunteer stenographers may be so used. Dictaphone equipment helps.

Instruct nurses to do some procedures now left to intern.

Nursing Shortage.—Check all procedures to eliminate the unnecessary and "streamline" the remainder.

Eliminate luxury services.

Where teaching facilities are available, enroll more students.

Neighboring hospitals might share instructors.

Use Red Cross Nurses' Aides, WPA and NYA Hospital Aides.

Use older nurses; if home duties prevent full time work, arrange their schedules accordingly.

Distribute hours for operations so less personnel is needed.

Labor

Absorb labor that can serve in hospital duties but is unable to serve industry.

Use labor-saving devices when possible, such as ice machine; candlewick spreads which save mangling.

Employ more workers from the older age group, thereby reducing turnover.

Pay adequate salaries to hold efficient workers, and let inefficient go.

Have department heads study overlapping of duties and waste motion in their subordinates.

Have department heads draw up a simple but inclusive procedure for each job to insure continuity of efficiency in face of more rapid turnover. Each new worker can be given a copy of the procedure and held strictly responsible for following it.

Save time for new employees by labeling doors they must find.

Supplies

Electricity.—Keep window shades rolled to the top to save electricity.

Remove bulbs to prevent the use of unnecessary fixtures.

Put up a notice near light switches, "Turn Off Expenses." Make a cartoon of it.

Study your electric power to learn the time of the "peak load" (usually 8-10 a.m.). Try to divert this; e.g., by baking in the afternoon.

The electric power in some passenger elevators does

not shut off automatically when the elevator is not in use. Therefore, be sure the switch is turned off.

Use lower watt globes in some places and fewer globes of greater power in others. Two fifties give better light than four twenty-fives, and globes are saved.

Linens.—Avoid unnecessary draping for minor surgery.

Discontinue ether socks and pneumonia jackets.

Have patients bring gowns, pajamas, et cetera.

Don't be so generous with linen.

Study laundry procedures; 75 per cent of wear and tear of textiles comes from laundering.

A study of gauze consumption will show many possible savings. Fewer layers of dressings and smaller sizes. Not all need be sterile.

Office Supplies.—Use both sides of all chart forms. Use backs of letters or scratch paper for carbon copies.

Cut off the top of carbon paper and thus prolong its life because keys will strike unused portion.

Use one paper towel rather than two.

Check paper-cup dispensers to see that only one cup is released at a time.

Require return of stub pencils before giving out the new.

Check the floor for rubber bands and paper clips each night.

See that nurses do not waste chart paper by writing in headings on sheets that are not used.

Write shorter letters; use narrow margins.

Wash steel pen points daily to prolong life.

Food.—Hospitals in rural areas should do more home canning.

Study diets with a view to simplification and curtailment of special diets ordered.

Require the restriction of certain food items such as sugar, pineapple, tuna fish.

Stop serving scarce and imported foods. Use more of the extra standard rather than so much extra fancy canned foods. Food value is the same.

Pay more attention to patients' tastes; e.g., don't serve cake on tray of patient who has said he never eats it.

Other Supplies.—Hypodermic needles can be resharpened by hospital personnel and re-used.

Hems of old sheets make good T binders.

Hand powder used in the operating room can be salvaged and sterilized for repeated use.

Regulating faucets in operating and delivery rooms to run a smaller stream during scrubbing saves water.

Finally, there are a few general principles which apply to any conservation program. For example: cut down on amounts requested in order to make the personnel more economy-conscious; keep prescriptions down to minimum practical amounts; have rigid issuance of all supplies by means of requisition. In conclusion, now is the time for the administrator who really wishes to have an effective conservation program to consider the installation of a perpetual inventory of all supplies—if he has not already done so.

MEETING THE INCREASING COSTS OF HOSPITAL SERVICE

A. G. STASEL

Superintendent, The Eitel Hospital
Minneapolis, Minnesota

THE need for national economy as an aid to the United War Effort is no longer a figure of speech, but a thing of reality. Time, effort and supplies are the factors that will tip the scales of justice. Economics, large or small, whether effected in the home or hospital, lend their weight to this united effort. We must *all* be economy-conscious at all times no matter what our relationship to the hospital.

War brings with it economic and social adjustments which must be recognized whether we individually wish to or not. Increased payrolls

and increased commodity costs are already with us to a considerable degree and greater increases are ahead of us to an extent, in all probability as great as we have already had in the past six to eight months. The reasons for these increases are quite obvious. Will these costs recede after the war? They no doubt will to some extent, but we will not be back on the old basis. This was true of the first World War and will no doubt be true of this one. We hospitals cannot escape the implications of a changed economic and social world. The influences of social security, forty-hour weeks, higher wages, inflation, will all affect hospital costs, either directly or indi-

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rectly, and the increased costs we are now faced with will no doubt be permanent to a very great degree.

How are we going to meet these increased costs? The easiest way, of course, is to increase our rates for various services as such costs increase. And this becomes an absolute necessity if the Voluntary Hospitals are to survive. Increases in rate structures may be approached on a permanent basis by increasing all charges on a "dollar-wise" basis, or on a temporary basis by increasing all charges on a "percentage-wise" basis. This latter basis has been called by one hospital association "a defense surcharge." The latter basis, namely, percentage-wise increase, carries with it the implication of being tied up with the war emergency and as a matter of good faith will be removed when the need therefor has been removed. We hope this is so.

Hospital Administrators should make themselves very familiar with their costs in all departments of the Hospital and should check these costs, under present conditions, almost weekly or at least monthly and should see to it that the hospital is properly reimbursed for services rendered. This does not preclude charity where charity is deserved. Insurance cases should be paid for on a full per capita cost basis and not less. Hospitals cannot subsidize any insurance or compensation cases. This is also true of Group Hospitalization cases as well. Dr. Fred Carter, when president of the American Hospital Association, gave us a word of caution in this regard when he said "In communities where active service plans are operating, the hospitals are becoming more and more dependent upon them for payment for services rendered. . . . as the movement grows, and the proportion of hospital income from this source increases, the per capita income of the hospitals tends to become fixed at a level which, in many instances is somewhat below per capita costs. In the meantime the per capita costs may increase and the disparity between the two may prove ruinous to the financial structure of hospitals. This situation becomes doubly serious when we stop to realize that many of those who formerly constituted our paying clientele, upon whom we depended for certain profits to offset losses on free and part-pay work, now come to us as subscribers to hospital service plans. In the face of such facts it becomes obvious that unless the plans make every

effort to keep their per diem rates to hospitals at levels approximately equal to per capita costs, the hospital in order to avoid embarrassment may find it necessary to devise services to sell down to a price instead of up to a standard." This principle is more important now and in the future than ever before. Our Voluntary Hospitals have been pretty proud of their tradition of services to all classes in the community. The extent to which our hospitals render community service as distinguished from self-supporting service varies of course, but if community service becomes too low or vanishes, the distinctive status of our Voluntary Hospitals, as well as their immunities, will be in peril. With the disappearance of gifts, endowments and the like, it becomes more necessary than ever that these sources of income pay their way in full, in order that in turn our social obligations or charity services to the community may be met. Our very existence is contingent upon this principle.

The time has come in hospital administration when we must think in "stream-lined" terms. Co-operative effort within the institution, as well as between the institutions in the same locality, is now fundamental, for it is only through this co-operation within and without that hospitals will survive the trials and tribulations which they now face and will face for some time to come.

For the past few years we have become soft and self-satisfied. From now on we must do a better job—or else. We must now become penny-wise if we are to carry on in a successful way and save dollars. The secret of successful operation of an acute hospital is in "turn-over" and not in occupancy. The faster the "turn-over" the greater the per diem income. There is not a need as a rule for more acute beds in a community, but there is a great need for more sub-acute beds at lower cost.

I have mentioned that the easiest way to meet increasing costs is to increase rates, which is necessary, of course, to a certain degree. This is the solution to only part of the problem, however. Increasing rates without doing a better job of collections gets us nowhere. Why not think, therefore, in coöperative terms (particularly in larger communities and this may be applied state-wide as well) and consider the establishment of a centralized credit and collection service for hospitals, together with a financing bureau to assist those who need this service.

Group Hospitalization has helped in this regard but we still have the major problem with us. Experiments to this end in other communities have reduced collection costs by one-half and increased the working capital of the hospital thereby. Why not here? We can do a better job through coöperative effort.

Let's look at the other side of the question, that is, the cost side of our hospitals and what can we do to meet rising costs in a better way.

We all take care of patients and the fundamental problem here is, for all practical purposes, the same.

Why don't we standardize our intra-hospital history forms and use the Monolithic Method of printing as is now the custom with large users of printing, such as insurance companies, etc. We can reduce our printing costs 40 to 50 per cent in this way.

Why not centralize our major purchasing problems? With the complexities of priorities, new processes and substitutions, we, all of us, are more or less in a whirl. Big business has recognized the advantage of pooled purchasing; the state of Minnesota is doing it at a big saving. Our hospitals—combined—is big business. What is wrong by saving 10 to 20 per cent in this way?

A centralized employment bureau serving our northwest area would go a long way towards not only stabilization of employment and reducing turn-over, but would again result in considerable savings to all of us.

Central schools of nursing for theoretical instruction developed by zones instead of by individual hospitals would definitely reduce costs of nursing education.

The present nurse shortage is to some extent our own fault. We shall get nowhere by "crying over spilled milk." It is now clear to most of us that we shall have to do without all luxuries and many so-called necessities for the duration of the war and that a great many comforts will have to be rationed or should. Special nursing will come within this category. Hospitals and the public must be relieved of the expense of maintaining Graduate Nurses or special duty nurses when such nurses should take their places on permanent payrolls and spread their efforts in the care of a larger number of patients. A distinction in the care of the acute as against the subacute patient should now be recognized. Judicious use of the Volunteer Nurse Aide, as well

as the Trained Aide, will, of course, be of considerable help. We need many kindly and intelligent hands for the bedside care of the patient and these can be obtained if we will use a little common sense and work together for it.

Let us consider some of the economies that are seemingly small, but are necessary at this time and which are all around us if we keep our eyes and ears open and become truly economic conscious.

In reading a recent copy of *News-Week*, my attention was called to an item of suggested economy by the American Institute of Laundering, which suggested that diners lean well over the plate while eating to prevent spots on the table cloths. The saving of laundry wear and tear is considered more important than good table manners now that impending shortages of textiles threaten the supply of table linen. Suggestion: Analyze your linen usage at its source. School your organization in linen economy. The results obtained will be worth the effort.

Food costs are mounting. Can anything be done about it? Yes, analyze the food service. Do you serve too much sugar, butter, bread, potatoes, meats on trays that later come back to help fill the garbage cans? Garbage can inspection is a regular procedure in Army Hospitals to check against waste. Why not in the Civilian Hospital? If our hospital administrators would do this only once in a while, they would learn considerable about food waste. Then there is food substitutions which an alert Dietetic Department will carry out in these times without anyone noticing any change, except that perhaps the Hospital Administrator subsequently wakes up to the fact that this food budget perhaps has not gone up as fast as others he knows about. Food cost consciousness through an educational program throughout our respective organizations will also help reduce food waste.

When considering drug, medical and surgical costs, substitutions are perhaps limited and yet if we keep our medical staffs conversant with costs from week to week, I am sure we can count on their support in keeping ultimate case cost in line. Again education as to rising costs will reflect itself in economies.

The use of electric lights and power unnecessarily has been a bug-bear to all of us at all times. Why not have the following notice print-

ed and placed on every light switch to make us all conscious of this cost?

NOTICE

In coöperation with the United States National Defense Program we are asking everyone to conserve electricity by making sure that all lights are out when not needed. Uncle Sam needs power.

Let's Help Him

General Maintenance costs can be reduced. Our painters, electricians, carpenters and mechanics appreciate attention to their needs. If we, as Hospital Administrators, show a real interest in their work and accomplishments, we can rest assured our maintenance departments will respond whole-heartedly to our desires for a real war economy. They will appreciate the responsibility.

Many other economies are obvious to most of

us, such as in the matter of rubber gloves. When worn out the fingers may be saved for finger cots and the balance cut up for rubber bands. Scotch tape may be often substituted for cloth tape. Rubber sheets should be guarded. They are now worth their weight in gold and you may have to turn in an old one to get a new one before long. Regular inspection of equipment in each department should result in definite economy.

Save everything—cans, drums, barrels, rags, rubber goods, paper. Have some central place where these items can be collected or sold. It all helps in this all-out war effort.

We are a nation at war—a war that none of us desired or like. It is difficult to realize that scarcities face us on every side, but our fighting forces must come first. So let us all "tighten our belts" a little more. Our present economy program is a "must" program if we are to survive.

PRIORITIES AND THE PROBLEM OF OBTAINING HOSPITAL SUPPLIES

ROY WATSON

Rochester, Minnesota

I SHOULD like to compliment Dr. MacEachern for arranging this timely meeting. The present emergency is presenting so many new problems, that I am sure all of us can benefit from these informal discussions although because of rapidly changing conditions what we discuss today may be out of date tomorrow.

As you know, hospitals have been given the privileges of two ratings—the A-10, P-100 blanket priority rating, and the PD-1-A rating.

The A-10 rating has been granted for maintenance, repair, and operating supplies. Its use does not require special permission from the War Production Board. If your supplier requests a priority rating, the procedure is to write on the purchase order or in an accompanying letter as follows: "Material for maintenance, repair, or operating supplies under rating A-10 on the Preference Order P-100 with the terms of which I am familiar." The order must be signed man-

ually by an officer or authorized executive of the hospital.

In view of the large number of industries that are being placed under these ratings, it remains to be seen how much help they will be to hospitals. However, since hospitals are definitely necessary to public health, there is a possibility that they may eventually receive a higher rating, as did the public utilities a few weeks ago. For this reason, I urge that hospitals do not abuse A-10 or mis-state their requirements, for if this rating is violated, they may jeopardize their chances for a higher rating or lose it entirely.

The PD-1-A rating is for improvements, additions to buildings, or new equipment. Application must be made to the nearest branch office of the War Production Board for triplicate forms and instruction sheets. After completion, these forms must be sent to the Director of Industry Operations at Washington. They must specify the latest date on which the items requested can be delivered to fill their purpose. If the request is approved, a specific rating for a specific purpose

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is given to the order and two forms are returned—one for the hospital's files and one to be given by the hospital to the supplier. In this connection, it should be borne in mind that certification by WPB covers only the specific items requested and has no bearing on future orders.

Cases will probably arise when there will be questions as to which rating to use. My suggestion is that in all cases, except those involving a new building, that the hospital try the A-10 rating first. If this rating does not enable the supplier to handle your order, then try PD-1-A.

The problem of obtaining hospital equipment, furnishings, and supplies might be summarized in a general statement to the effect that everything will become increasingly difficult to obtain and that higher prices are certain. No doubt all of us have already experienced this definite trend, whether we have been trying to purchase linens, canned food, furniture, or operating room drugs. Furthermore, I am confident that many more government controls and rationing plans will soon be in operation. As a result, and despite our priority rating, we will have to try to find new sources of supply for the things we need, and we even may have to purchase through retail channels. The manufacturers' and jobbers' stocks will necessarily be depleted first, and in many cases when these stocks are gone, there will be no materials available for replacement or new manufacture. This also will mean that we will have to either go without certain supplies, get along with what we are now using, or use substitutes. However, while I think that shortages will become much more acute than many of us realize, I believe that enough supplies, such as gauze, drugs, syringes and needles, instruments, sutures, and like items will be available to hospitals in small quantities to enable us to function—but not to operate "as usual."

For the past several years a committee of the American Hospital Association has been work-

ing with the United States Bureau of Standards on the problems of standardization and simplification and has done a very good job. It seems to me that now is a very appropriate time for hospital superintendents and medical directors to analyze their situations with respect to standardizing both equipment and supplies in their various departments. This simplification will tend to reduce the number of items bought, and in many instances will enable hospitals to purchase the accepted articles in sufficient quantities to reduce the unit price. Inasmuch as a later speaker will discuss the very important subjects of conservation and economies, I merely wish to call this program to your attention so that you may capitalize on the efforts of this committee.

I might also suggest that the members of the various state hospital associations send to their secretaries a list of the excess used or unused equipment or supplies which they might have in their storerooms, attics, or basements. I am sure that many of us have furniture, kitchen equipment or supplies which we will never use but which might be serviceable to some other hospital. The secretaries then could publish such lists in special bulletins so that the information would be available to all members. This procedure is being followed with considerable success by the Educational Buyers Association and has made available several items of equipment which cannot be purchased on the market.

May I again stress the importance of not abusing our priority ratings and of doing everything possible to preserve the life of our present equipment and supplies. Procurement in all lines will become much more difficult, and superintendents and purchasing agents are being challenged to locate new sources of supply and substitutes, and to develop new techniques in operation.

The gap between proven knowledge and effective action based on that knowledge is nowhere more glaring than in our fumbling efforts at control of the most common of the infectious diseases.

We know that the time lost from the common cold would build hundreds of the planes we now need so much. Yet, the simple prophylactic measure of isolating all those with colds in early stages is applied routinely to a few school children only.

This failure to coordinate knowledge and action is also all too common in our efforts to control and eradicate tuberculosis.—*Tuberculosis Abstracts*, April, 1942.

A STUDY OF OSTEOPOROSIS BY MEANS OF CONTROLLED X-RAYS OF THE BONES

Part I—Method

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Minneapolis, Minnesota

IN 1933 the author called attention to a group of patients with gastro-intestinal complaints who had a definite osteoporosis of the bones (hand and wrist), when compared with normal subjects of the same sex who were used as controls.¹ The difficulty in using this technique depended upon the fact that the same normal controls were not always available for comparison. We have, therefore, worked out the following new method.

Normal subjects in perfect health and free from all abnormal symptoms have been filmed, using a series of exposures which differ from each other by that exposure necessary to penetrate 0.5 mm. of aluminum. The exposures are measured by means of an aluminum ladder (Fig. 1) placed on the cassette at the time of the exposure. This aluminum scale varies in thickness, from 2.0 mm. to 5.0 mm. The exposures, therefore, for this series, called the "master control series," are equivalent to penetrations of 2.0, 2.5, 3.0, 3.5, 4.0, 4.5 and 5.0 mm. of aluminum respectively. The resulting films vary, then, from those which are definitely under-exposed to those which are over-exposed. The variable is the time of exposure. The rest of the x-ray technique including distance, voltage and development, is constant. Several "master control series" have been made varying according to age, sex and activities of the normal.

When the unknown patient reports for examination, the hand and wrist along with the aluminum scale are filmed. For purposes of interpretation the scale on the unknown film is compared with the scale on the control film so that the two scales match perfectly in density (Fig. 2). This records the difference in density of the bones between the control and the patient, thereby giving definite information as to the presence of osteoporosis. Then the densities of the bones, control and unknown, are matched as closely as possible, and, if the difference of alumi-

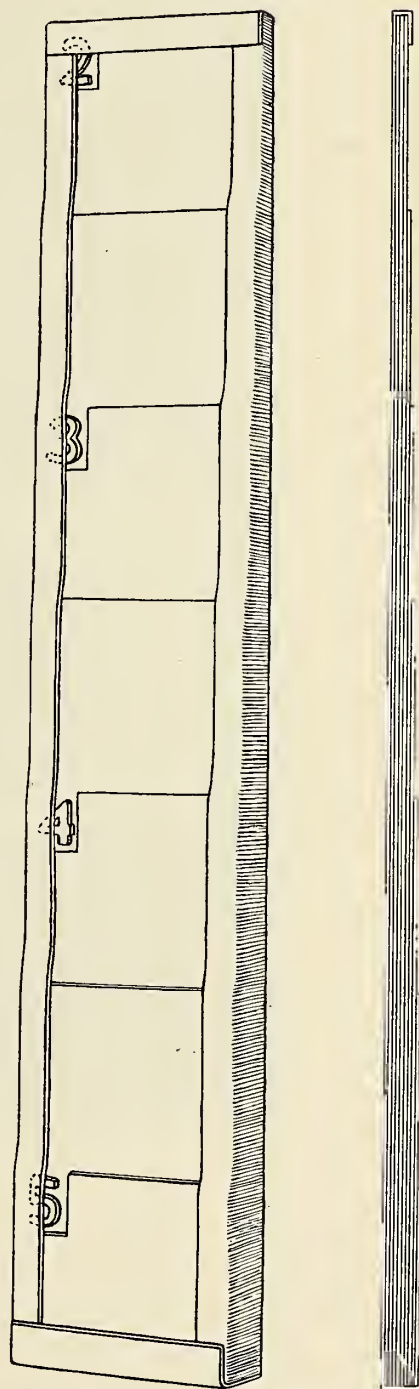


Fig. 1. A semi-diagrammatic sketch of the aluminum ladder. The figures indicate the variations in thickness in millimeters.

We are indebted to Mr. Carl Reed, of the Pengelly X-ray Company, for the suggestion as well as the construction of the aluminum ladder.

num penetration is only 0.5 mm., the osteoporosis is graded 1; if 1.0 mm., graded 2; if 1.5 mm., graded 3; and 2.0 mm., graded 4.

ucts in the diet very frequently show osteoporosis. This is especially true when the water is "soft" and free from calcium or when so-called "alkali

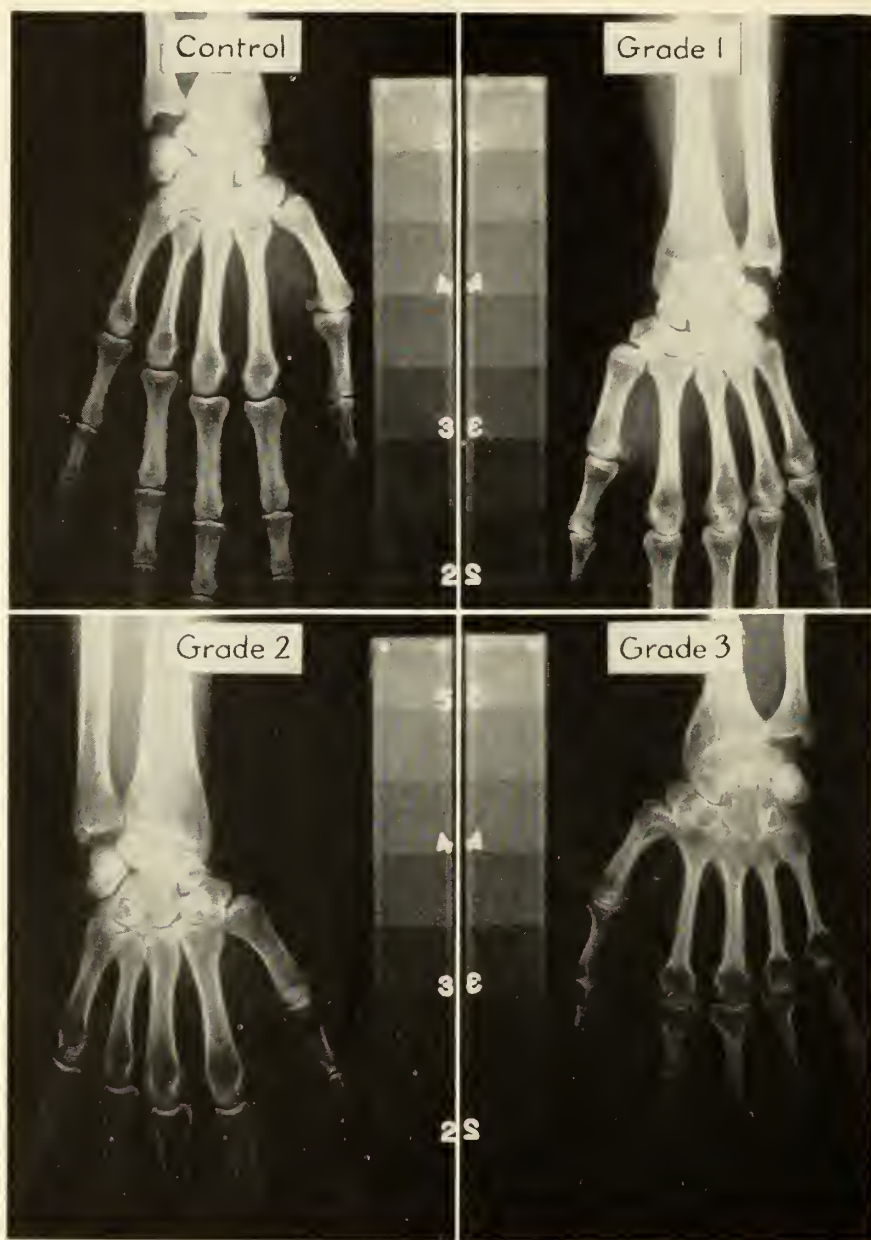


Fig. 2. X-rays of the bones of the hand with the aluminum ladder in place. These show equal densities of the aluminum ladder, and the variations in bone density in the Control, Grade 1, Grade 2, and Grade 3 osteoporosis.

Results

1. An osteoporosis equal to grade 1 is not uncommon in healthy people. There is very little difference between the right and left hand. If osteoporosis is present in the hands and wrists, it will also be found in the jaws, spine and pelvis.

2. In this geographic area (Minneapolis and Saint Paul) people who do not use dairy prod-

water," containing excess magnesium, is used.

3. This technique for the determination of osteoporosis has been invaluable for diagnosis of probable mineral depletion and also for the determination of the value of therapeutic procedures for restoring normal bone densities.

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PRESIDENTIAL ADDRESS

HERBERT Z. GIFFIN, M.D.

Rochester, Minnesota

MY presentation will be partly a report of my activities and partly a discussion of some, and only some, of the aspects of the medical situation. Following this I shall present a concrete suggestion for future investigation.

From the time of the 1941 meeting to January 1, 1942, I traveled, usually with our former president, Dr. B. J. Branton, sometimes alone, to meetings throughout the state in order to emulate my predecessor, to become better acquainted, to transmit the policies of the Council and the House of Delegates, and to obtain the opinions of members of the Association. In the six months since January 1, I have traveled several thousand miles to medical meetings, committee meetings, and meetings of allied societies. This has meant an average of two meetings a week. The work has been different and not especially difficult. It has been pleasant and stimulating although I have had misgivings with respect to my effectiveness.

The president can accomplish nothing alone. The councilors and other officers of the Association can do very little by themselves. The first essential to an active and effective Association is an efficient administrative staff which fortunately we do possess. Most important, however, to a program of advancement and expansion are active committees, and an essential of an active committee is a well informed and enthusiastic chairman. It is only through committees that our work can be effective. The time has passed when a chairman may say without embarrassment, "Your committee has had no meeting during the year." It is not necessary for me to rehearse the projects of our committees. You have had their reports and have been informed of their activities during the year through miscellaneous publications, *News Letters*, and *MINNESOTA MEDICINE*. We all know of the national recognition which has been given to the work of some of our committees, and I am glad to say that all committees of the Association have concrete plans for the future. Let us continue to support them in their work. Members of these committees give time

and effort gratis and they should be encouraged at every opportunity.

I shall discuss, first, certain impressions which have been obtained. It is an outstanding observation that physicians everywhere, especially general practitioners, are eager to learn. They travel long distances to attend meetings, postgraduate courses and clinics. They read the journals and can ask embarrassing questions. They appreciate the information obtained from the Packet of the Month. They appreciate the excellence of our sectional and state meetings and many of them attend meetings of the national societies and sit for hours to learn of the latest procedures. It is therefore clear that postgraduate instruction of all types should be continued and, if possible, expanded even during the war period. I believe we should follow the principle of having postgraduate education provided almost entirely by facilities within the state in order that it may be on a permanent and continuing basis. It is possible that the staff of every larger hospital of the state can arrange for at least a few clinic days during the year. Undoubtedly the education of specialists will suffer during the war because it will not be possible for so many of our physicians, except those physically disqualified for military service, to spend three years or more in graduate work, and for this reason again postgraduate education should be encouraged.

I have, of course, found that physicians are concerned and perplexed with respect to the workings of the Procurement and Assignment Service and the advisability of applying for commissions. During the year the situation with respect to the supply of physicians to the various services has become clarified and we now know where we stand. We at last realize that the situation is exceedingly serious and that both voluntary enlistment and recruiting through Procurement and Assignment are absolutely necessary. The number of physicians needed is much larger than was anticipated. Approximately twenty thousand physicians are in the various services now and it is estimated that three thousand a month will be needed in the future. By 1943 there should be forty thousand physicians in the various services. There are about 180,000 physicians in the country of whom probably 160,000 are active. This

Presented at the eighty-ninth annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 28, 1942.

means that by next January one doctor out of every five will be in service; in other words, there will be one physician in service for every four at home. It also means that more than half, possibly two-thirds, of those who are physically qualified and less than forty-five years of age will be in service.

Recently medical recruiting offices have been set up near the offices of the state medical associations to work in conjunction with the Procurement and Assignment Service. These recruiting offices select physicians who have volunteered through Procurement and Assignment and pass upon their qualifications. The names of qualified physicians are submitted to the Procurement and Assignment Service for determination as to whether or not they are regarded as essential men in their communities. The recruiting boards pass on the qualifications of the volunteers but their availability is decided by the Procurement and Assignment Service. The activities of the medical recruiting offices, with elimination of red tape, have speeded up the commissioning of physicians for the Army. Minnesota has done well—more than 500 of our 3,000 active physicians are in service. However, in spite of the activities of the Procurement and Assignment Service and the medical recruiting offices, more physicians are needed. No other profession or group has been given the privilege of selecting its own members for service, and if we desire to avoid dictatorial federal policies with respect to the recruitment of physicians, it is absolutely necessary that we do our part in making the Procurement and Assignment Service a success. This means that each physician who is physically qualified must seriously consider his own situation and decide honestly and patriotically his duty in the circumstances. If Procurement and Assignment fails the proponents of state medicine will have a pretty feather in their cap.

Another observation of an interesting and somewhat amusing nature concerns itself with the attitude of older physicians in relation to the war effort. Older men resent not being able to go into service. Physicians less than thirty-seven years of age are wanted. Those less than forty-five will be accepted and given commissions. But only in instances of most unusual special qualifications will men more than fifty-five years of age be accepted at all. Yet the older physicians are most patriotic and it is difficult to convince them

that they should not be accepted for commissions. Nevertheless, the older physician, who in many instances thought that he was of no more use in the world, suddenly has come to realize that he is a very valuable and necessary asset, that he can return to practice if he has retired, that he can take on the teaching position of a younger man, that he can again expand his practice, and the psychologic effect of all this is resulting in an improvement in health. Dr. Lahey at the recent meeting of the American Medical Association stated that he was happy to say that in spite of his strenuous year as president he was in better health than formerly. I wonder if the incidence of coronary occlusion and other serious vascular disease among older physicians will be reduced in spite of increased activity during the period of the war. If so, a new treatment for age has been discovered! Let us then propose a toast to the continued health and activity of our older physicians. They will do more for the country in civilian life than many a younger man.

Another topic of interest to the practitioner is the foreign graduate or so-called refugee physician. In this state refugee physicians have not been accepted by the State Board of Medical Examiners. The requirements for licensure are variable in the different states. The criteria set up by the Army Medical Corps for foreign graduates are rigid. A foreign graduate must be a citizen of the United States; he must have had a premedical education equal to that required for our approved medical schools; he must have a medical education of four academic years; he must be licensed in the country where his school is situated, and he must have had a year of internship; his qualifications must make him eligible to take the examination of the National Board of Medical Examiners and he must have a license to practice in the United States. Few foreign applicants can obtain evidence of these qualifications. No one can say at present whether the demand for physicians in civilian practice will make it necessary for the State Boards of Medical Examiners to revise their requirements or not. However, I am sure it is the sentiment of physicians in this state that as long as it is possible to do so our own physicians will make a very strenuous effort to take care of the civilian population.

Osteopaths have been accepted only as enlisted men but after training they may apply for service

in connection with hospital units but as enlisted men only. Congress made it permissible for the Army Medical Corps to accept osteopathic physicians, leaving the decision, however, in the hands of the Surgeon General, who for various well founded reasons has declined to give them commissions. Among other things, the Surgeon General states that he "is charged with the preservation of the physical well-being of the military forces and that this responsibility cannot be discharged in the absence of fixed standards of preventive measures, diagnostic procedures and curative therapy, and that these standards are found only in the school of regular medicine."

Next, I would like to discuss the situation of those of us who stay at home. We must of course care for the civilian population. This requires adjustment of our methods of practice, care of patients in areas where physicians are absent, elimination of inefficiency and useless waste, increased activity of older physicians, and return to practice of some of those who have retired. But it is self-evident that war is destructive; destructive of human lives, destructive of materials, of historical records, of art, of culture, of education. Yet the maintenance of as much culture as possible is essential—essential to recovery after the war. Consequently the duty of those of us who stay at home is clear. Outside of practice we must do our part to maintain the standards of medical education and, as far as possible, the standards of research. We must perfect the organization and coördination of all agencies concerned with health and medical care and even expand these activities where possible, looking forward to the necessities of peace. We must support in every way possible the colleges and universities, the medical schools, and scientific and humanitarian societies active in education and research. There can be no greater service than doing our part in maintaining the institutions and cultural activities of peace in order that there may be as sound a foundation as possible for recovery following the war. It is the history of war that that country recovers quickest and to the greatest degree, whose cultural foundation has not been destroyed and whose great men have not been throttled.

But these remarks are of a general nature. Is there anything more specific which should be proposed? We are expanding our campaigns in nutrition, vaccination and immunization, tuber-

culosis, child health and industrial health. Heart disease of children is under survey. Public health education is being carried on in an active manner. The medical setup for civilian defense is being organized slowly but satisfactorily. For the present it is recognized by those who are responsible that the most important portion of the civilian front is the industrial front and the problem of supplying medical care for both small and large industrial plants is being attacked vigorously. For the future it is clear that our greatest expansion should be in preventive medicine and in child health in coöperation with the State Board of Health and the Division of Social Welfare, that the next generation may be superior in every respect for reconstruction after the war.

Is there any other phase of medical care which should be studied? I have one concrete suggestion. For years the public and physicians have discussed the cost of medical care but, as far as I know, no state medical association has attacked the problem of useless waste in medical practice. Is it not timely when efficiency and economy are so necessary on account of war, to initiate a detailed study of this question and, when peace comes and the cost of medical care again becomes a major topic, to be prepared to provide a high standard of medical care at less expense, if possible, to hospital, physician and patient?

In looking over the literature on waste in medical care or, if you prefer, economy in medical care, I find many articles on hospitals—the folly of building overly expensive and ornate hospitals, the necessity of the utilization of a higher percentage of hospital beds, the need for studies in each community before enlarging hospital facilities, and numerous articles on the details of economy in hospital management. By marked contrast I find only two recent articles on waste and economy in medical care; one is entitled "Economy in Medication" and the other "Why Waste the Patient's Money on a Complete Blood Count?" It is clear that we need information on the useless tests which are being done in hospitals, partly because the chief may ask unexpectedly for a certain test which has not been obtained; also on the unnecessary and expensive prescribing of new and untried drugs, especially at this time, of vitamins, on waste in dressing room supplies, and the unnecessary duplication of various types of equipment. Recently at the meeting of the Minnesota Hospital Association I viewed an exhibit

on waste in hospital supplies. I cannot go into detail but damage to rubber, extension cords, burners, laundry, rugs, bedding, was demonstrated. It was shown that washed gauze is usable and less harsh than new gauze. Materials collected from laundry chutes were exhibited. In 1941 in one hospital more than 18,000 pieces of glassware were broken.

While the question of waste and economy in medical care has concerned me for a year or two, this exhibit focused attention on the subject again. I am sure that if such a study can be properly carried out many things of practical value to all of us will be disclosed. It will take at least a year or two of investigation and study. Our findings will necessitate later, if not now, a coördinated study by other groups: the university medical school, the hospital association, the nurses' association, and the pharmaceutical association. I grant that it will be difficult to find physicians qualified for such a task. Moreover, they would need assistance from laymen trained in efficiency and administration. It will be nec-

essary first to find an interested, willing and enthusiastic chairman and to give him the major responsibility of selecting the personnel of his committee and his assistants. I hope that this suggestion will be referred to the Council for their opinion.

And now I come to my valedictory. Although I am still granted six months of official life as your president, I shall have no other opportunity to express to you my deep appreciation of the honor you have conferred on me. My sense of appreciation is embellished by a firm conviction that the most gratifying factors in the life of a professional man are the companionship, tolerance and esteem of his fellow practitioners. As confrères, let us overlook each other's shortcomings and magnify each other's good qualities that we may work together to the honor and the progress of the medical profession. And in this war emergency, in the words of President Hutchins of the University of Chicago, "What can I do but ask you to lift up your hearts, and face the future with the fortitude becoming to educated men and women?"

SULFA DRUGS CAUSE THYROID ENLARGEMENT

Enlargement of the thyroid gland in the neck and a decrease in its activity are caused by the sulfa drugs, Dr. Julia B. Mackenzie and Dr. C. G. Mackenzie, of the Johns Hopkins School of Hygiene, have discovered in studies of rats, mice and dogs.

Sulfaguanidine, sulfadiazine, sulfapyridine and, to a lesser extent, sulfanilamide, all caused the thyroid gland enlargement. Another sulfur-containing chemical, thio-urea, had the same effect to an even greater degree. In the case of rats given sulfa drugs, the enlargement of the gland was accompanied by a decrease in its activity, as indicated by lowered basal metabolic rate.

The enlargement of the gland as a result of sulfa drugs was prevented by doses of thyroxin, the hormone produced by the gland. Iodine, however, which the gland requires for manufacture of its hormone, did not prevent the enlargement due to the sulfa drugs.

Whether the sulfa drugs prevent the formation of thyroxin by the gland or whether they destroy it after it has been produced is not yet known.—*Science News Letter*, April 25, 1942.

ARTHRITIS NOW LINKED TO RHEUMATIC FEVER

Evidence that chronic infectious arthritis in adults may have resulted from rheumatic fever in childhood was given the American Association of Pathologists and Bacteriologists by Dr. Archie H. Baggenstoss and Dr. Edward F. Rosenberg of the Mayo Clinic.

The two Mayo physicians felt that arthritis involves more than disease of the joints; that it involves the vital organs, the crippled joints being merely one expression of the malady.

They examined the organs of thirty patients who had had chronic infectious arthritis and found evidence of disease in the heart, kidneys, liver and other organs. There was damage to the heart in twenty-four cases and in sixteen of these the injury was indistinguishable from that caused by rheumatic fever. Also significant was the pathologic condition discovered in the kidneys. It was felt that heart and kidney damage was due to the same underlying set of causes.

Drs. Baggenstoss and Rosenberg concluded there may be a relationship between chronic infectious arthritis and rheumatic fever, typically a disease of childhood.—*Science News Letter*, April 25, 1942.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

Frank C. Andrus, Pathologist

Presentation of a Case

DR. MOOSNICK: The case was that of a sixty-one-year-old white male who was admitted to the hospital on May 6, 1942, and who expired on May 28, 1942. The patient stated that he had had swelling of the abdomen and ankles for two weeks and had experienced epigastric pain and anorexia for the three weeks prior to admission. The epigastric disturbance was not severe but was annoying and came on shortly after eating. He thought that he received some relief by taking soda. He also experienced some difficulty in breathing. He said that his urine had become dark in color and he described it as bloody. There were no frank blood clots, however. He had no other genito-urinary symptoms. The past history was not remarkable except that the patient had drunk about one quart of whiskey each day for many years.

Physical examination at the time of admission to the hospital revealed a well-developed and well-nourished man. His blood pressure was 140/80. The abdomen was distended and a fluid wave was present. Several spider-web angiomas were present over the left upper chest and the left shoulder. The pupils were regular and even and reacted to light. The skin and sclerae were definitely icteric. Crepitant râles were heard over the bases of the lungs. The cardiac dullness was enlarged to the left on percussion. No other significant cardiac findings were noted. The ankles showed a one plus pitting edema. The impression at the time of admission was portal cirrhosis, with ascites.

Laboratory examination revealed the hemoglobin to be 68 per cent, the leukocyte count was 7,000, the average mean diameter of the red cells was 7.9 microns. The urine was dark brown in color and had a specific gravity of 1.027. It contained a faint trace of albumin, one plus urobilin and a trace of urobilinogen. There was no bilirubin in the urine. The blood urea nitrogen was 23 mg. per cent, cholesterol was 222 mg. per cent, the icterus index was 24. The direct immediate Van den Bergh was 4 plus and the direct delayed 3 plus. The plasma proteins were normal. The vitamin C level was .15 mg. per cent. Abdominal paracentesis was performed and two gallons of bloody fluid were removed. A bone marrow biopsy was performed but did not reveal any characteristic pattern. A barium enema examination revealed diverticulosis of the colon but was otherwise negative. Gastro-intestinal x-ray studies were likewise negative. The stools contained gross blood. A

peritoneoscopic examination was performed and tumor nodules were thought to have been seen on the peritoneum. The patient was placed on a high carbohydrate diet and given fluid and supportive treatment, but he did not respond well. He became stuporous and finally developed signs of hypostatic pneumonia and expired on the twenty-second hospital day.

DR. ADKINS: Was there much peripheral edema?

DR. MOOSNICK: The edema was minimal. The venous pressure was normal and after bed rest, the ankle edema disappeared completely.

DR. PEPPARD: After abdominal paracentesis, were there any special findings on palpation of the abdomen?

DR. MOOSNICK: The patient was rather obese and we were unable to make out any abdominal masses. Our clinical impression was cirrhosis of the liver and intra-abdominal malignancy, site of origin undetermined.

Autopsy Findings

DR. PAPERMASTER: Except for hypostatic pneumonia in both lungs, the anatomical findings of interest were limited to the abdomen. The liver weighed 3,150 grams, about twice normal weight. The external surface showed a portal cirrhosis and in addition, the liver was riddled with tumor nodules which varied in size up to about 20 cm. in diameter. The nodules were bright yellowish-green in color and had the characteristic appearance of a primary carcinoma of the liver. Only one small metastasis was found and that was in the subcutaneous tissue of the abdominal wall. We were unable to find the nodules on the peritoneum that the peritoneoscopist described. The cortices of the kidneys contained numerous small abscesses. The abdominal cavity contained about six liters of blood-tinged fluid.

DR. ANDRUS: The striking thing in this history is that here we have a chronic alcoholic who develops ascites and ankle edema with icterus. We were unable to explain the bloody abdominal fluid on the basis of uncomplicated portal cirrhosis. The microscopic sections of the liver revealed the characteristic changes of Laennec's cirrhosis. In addition there was a primary carcinoma of the liver of the hepatoma type. The tumor was extremely well differentiated and many of the

(Continued on Page 579)

HISTORY OF MEDICINE IN MINNESOTA

HISTORY OF THE MINNESOTA STATE MEDICAL SOCIETY

By **ARTHUR S. HAMILTON, M.D.**

Minneapolis, Minnesota

(Continued from June Issue.)

Twenty-third Annual Meeting

The twenty-third annual meeting of the Minnesota State Medical Society was held in Minneapolis June 17, 18, and 19, 1891. Dr. W. L. Beebe of St. Cloud, president, presiding. Several changes in the usual program for the work of the various sections were made and the usual roll call of members was omitted, a register book signed by members attending taking its place. For the first time since the Society was formed a member was expelled for advertising. A stenographer to report the discussions of the papers read was again to be hired and again a committee was appointed to revise the constitution. Twenty-five new members were admitted, bringing the number of active members to three hundred and eighty-four.

Doctor Beebe, in his inaugural address, did not, as was usual, review the advances in medicine during the past year but advised a more careful consideration and review of the papers to be presented. He also noted that medical colleges were now demanding more preparation on the part of students presented for admission and stressed the necessity of their action. With regard to the investigation of Professor Koch on tuberculosis he stated that although his claim of curing the disease with tuberculin has as yet not been established, his work had stimulated bacterial investigation to such an extent that no doubt many valuable results in the etiology and cure of infectious diseases were prone to follow.

The papers read at this meeting as a whole were of very high order. They were thoroughly discussed and in several instances the discussions were of great value. Most of the papers presented related to surgical aspects of diseased conditions except those of Doctor Spencer and Doctor Bean. The former discussed the clinical aspects of the newer findings of bacteriologists, a very logical discussion. The latter narrated his experiences with tuberculin. He said we are not justified in stating that Koch's treatment has been found inefficient both as a diagnostic and therapeutic means in tuberculous disease.

As a whole the papers read were much superior to those formerly presented and the discussions thorough and significant. Since surgery has advanced much more rapidly in the few previous years than medicine it is not surprising that medical aspects of disease were not much in evidence at this time.

Doctor Parks Ritchie of Saint Paul was elected president for the following year.

Twenty-fourth Annual Meeting

The twenty-fourth annual meeting of the Minnesota State Medical Society was held in Saint Paul, June 15, 16, and 17, 1892. The meeting was called to order by President Ritchie.

At this meeting the Society was incorporated. It was found that the society had been incorporated in 1869 but that the articles were never filed so that only those five members who signed the articles in 1869 were members of the Society as then formed. This was remedied by the new articles of incorporation. The constitution of the Society was again revised and considerable discussion of proposed amendments took place. The new constitution was printed with the transactions.

A resolution was presented by Dr. William Davis of Saint Paul authorizing the employment of attorneys to examine the laws of this and other states for the prosecution and punishment of the crime of abortion in order to see whether our laws relating to this crime could not be improved. The reason for the presentation of this resolution was that a Saint Paul physician had been convicted of the crime of abortion, the verdict, in the opinion of many, not being sustained by sufficient evidence. In our state, there was a special rule of evidence for cases where abortion is charged which did not exist in most of the states, the ordinary rules of evidence there prevailing. (See History of Medicine in Ramsey County previously presented.) This resolution, after some debate, was carried and the president appointed a committee of attorneys to examine the laws.

Dr. A. W. Abbott of Minneapolis was unanimously elected president for the ensuing year and thirty-four new members were admitted.

The president's address was largely concerned with the recent advances and activities of the Board of Health and the State Board of Medical Examiners and the recent interest throughout the country in the prophylaxis of tuberculosis.

The papers read at the meeting showed that the authors had thoroughly studied the subjects they presented. Various surgical aspects of gynecologic and surgical conditions were presented as well as the medico-legal aspects of court procedures. The papers were thoroughly discussed and it is evident that the reporter of the meeting was able to adequately transcribe the thoughts of the speakers. There were no pathological presentations and the materia medica section consisted of but one brief presentation. In the Section on Diseases of Children for the first time no mention was made of diphtheria. Most of the papers were presented by faculty members of the University staff.

Twenty-fifth Annual Meeting

The twenty-fifth annual meeting of the Minnesota State Medical Society was held in Minneapolis on June 21, 22, 23, 1893. The meeting was called to order by the president, Dr. A. W. Abbott of Minneapolis.

There is no mention in the minutes concerning the resolution regarding the changing of the law relating to the crime of abortion presented by Dr. Davis and passed at the previous meeting. The legislature of this year, however, passed a new law deleting the article relating to a special rule of evidence in such cases, which was a logical and necessary step. It was again found necessary at this time to revise to some extent the constitution of the Society and a committee was appointed to eliminate some of the articles that conflicted with others. The dues, which previously had been two dollars annually, were raised to three dollars because of the additional expenses to the Society. Twenty-nine new members were admitted at this meeting.

The address of the president was short. He stated that the progress of medicine and the elimination of irregular practitioners did not lie so much in the laws reg-

ulating medicine as in the scientific attitude of the practitioner. Medicine had become a science and the practitioner must practice it as a science. Quackery would eliminate itself if all kept up to date in the rapid progress of the Science of Medicine.

The surgical papers at this meeting were largely concerned with appendicitis as at this time the diagnosis was made early in the disease and the surgeon no longer waited 'til an abscess developed before operating.

A long symposium on chronic Bright's disease was also presented, the subject being thoroughly covered.

Hysteria in the Section on Nervous Diseases was also discussed and several papers relating to it were presented.

Dr. J. H. Dunn presented a long paper thoroughly discussing stricture of the urethra. The paper was so complete that there was little to discuss. Among men who previously have not presented papers at the state meeting and who later became prominent practitioners in the state one may mention H. Longstreet Taylor, Arnold Schwyzer, and Charles L. Greene.

It would be impossible and unnecessary to review all the papers presented. Surgery was the predominating subject but more well thought-out medical subjects were presented than hitherto. Gynecology and medico-legal subjects were also presented. Dr. W. J. Mayo of Rochester was elected president for the ensuing year.

Twenty-sixth Annual Meeting

The twenty-sixth annual meeting of the Minnesota State Medical Society was held in Saint Paul, June 20, 21, and 22, 1894. The president, Dr. W. J. Mayo, opened the meeting. Only seventeen new members were admitted.

There was little business before the Society. Money was appropriated to print a registry of physicians in Minnesota by the Board of Medical Examiners and the Board of Health and a resolution was adopted to prepare or select a series of tracts on the control of tuberculosis for distribution among the people.

Dr. Mayo, in his presidential address, reviewed the relations of the profession to other professions in the state, as well as our relation to the law and the status of the profession to malpractice, the coroner's office, and the commitment of the insane. The subject of the prophylaxis of tuberculosis was also touched upon. He made it plain that the public was now being aroused to the necessity for public action in this regard.

Thirty papers were presented at this meeting and for the first time physicians from without the state were invited to make presentations. Dr. Karl von Ruck of Ashville, North Carolina, spoke on "The Therapeutic Uses of the Pneumatic Cabinet" and Dr. E. C. Dudley of Chicago spoke on "Myomectomy as a Substitute for Hysterectomy." Sixteen of the papers were upon non-surgical subjects, showing that medicine at this time was making advances though it had been eclipsed by surgery in the last few years. For the first time in the history of the Society, a paper on cesarean section was presented by Dr. J. H. Dunn, who also presented "Observations on Appendicitis with a Brief Review of Thirty-eight Consecutive Cases."

Dr. W. T. English presented a paper on "The Parasitic Origin of Cancer" coming to the conclusion that the question of the parasitic origin was still debatable.

Dr. Justus Ohage of Saint Paul was elected president for the year 1895.

Twenty-seventh Annual Meeting

The twenty-seventh annual meeting of the Minnesota State Medical Society was held in Duluth, June 19, 20, and 21, 1895, Dr. Justus Ohage, president, in the chair.

The minutes of this meeting are more extensively recorded than any previous meeting but the business transactions were of little importance. The subject of the use of diphtheria antitoxin was discussed by Dr. A. E. Spalding of Luverne. He had used it in seven instances and stated that "these few cases are not sufficient proof as to the efficacy of the serum treatment. I cannot help but feel that in it we have reason to take courage in fighting one of the most fatal and treacherous diseases we are called upon to treat."

A considerable number of individual case reports were made at this meeting but there were but one or two interesting and thoughtful papers presented. A symposium on insanity and hospitals for insane patients was covered by several who presented papers. Dr. John T. Roger's paper "Ectopic Gestation with the Report of Sixteen Cases" and "The Modern Management of Simple Fractures" by Dr. J. H. Dunn were the best presented papers of the session.

On the last day of the meeting the members of the Society journeyed to West Superior where the Wisconsin State Medical Society was meeting.

Dr. Frank Allport of Minneapolis was elected president of the Society for the coming year and fifty-one new members were admitted.

Twenty-eighth Annual Meeting

The twenty-eighth annual meeting of the Minnesota State Medical Society was held in Minneapolis, June 17, 18, and 19, 1896. The president, Dr. Frank Allport of Minneapolis, opened the meeting. The minutes of the meeting are quite voluminous but there is little of interest as they deal largely with routine matters.

The committee appointed at the previous meeting to investigate the use of antitoxin in comparison with other treatments for diphtheria made an extensive report. The mortality rate of those treated with antitoxin out of 643 cases reported in Minnesota was 12.09 per cent; of those not treated with antitoxin the mortality was 16.17 per cent. This mortality rate of 12.09 per cent is much higher than it should have been but in reading further in the report we find that in practically all the cases so treated the antitoxin was used late in the disease and the amount varied from only 5 to 30 cubic centimeters. Apparently the profession had not as yet learned the proper use of the serum.

Dr. Allport's presidential address was a review and criticism of the law in Minnesota relating to the office of coroner. He believed that the medical profession should endeavor to have a law passed correcting the present ones.

Dr. C. G. Slagle of Minneapolis discussed the use of antitoxin in the treatment of diphtheria. This paper was largely made up of quotations from the symposium heard on the subject at the preceding meeting of the American Medical Association. Apparently but few of those present had used or had any clinical knowledge of antitoxin, as the discussion was brief.

Pierce Butler, then County Attorney of Ramsey County, addressed the Society on "The Medical Expert." This was the first time, according to available records, that anyone not a physician had been invited to participate in the program of the Society.

The Section on Gynecology presented a symposium on pus in the pelvis by Dr. Courtney of Brainerd, Dr. A. J. Mayo of Rochester, Drs. Abbott and Dunsmore of Minneapolis, and Dr. McLaren of Saint Paul. The subject was thoroughly covered.

Forty papers were presented at this meeting. Three of these were by speakers from Chicago and St. Louis. We note particularly a thesis on "The Management of the Senile Heart" by Dr. George Head, a very scholarly presentation. Dr. A. A. Law presented a short paper on "The X-ray." These three papers were the first on these subjects presented to the Society. Doctor Law took the first medical x-ray shadowgraphs in the state.

Dr. W. D. Flinn of Redwood Falls was selected as president for the coming year over Dr. W. H. Magie of Duluth by a close vote.

Twenty-five new members joined the Society this year.

Twenty-ninth Annual Meeting

The twenty-ninth annual meeting of the Minnesota State Medical Society was held at Mankato June 16, 17, and 18, 1897. Dr. W. D. Flinn, president, presided at the meeting and Dr. John F. Fulton of Saint Paul was elected president for the ensuing year. The minutes of the meeting are more voluminous than any previous meeting but are of no particular interest to us at this time. This meeting was not as largely attended as the three previous meetings.

The president's address dealt largely with progress made in the medical field, reduced mortality in diphtheria due to the use of antitoxin and the nationwide progress in efforts to eliminate tuberculous infection. Thirty-three new members were admitted to the Society and twenty-five papers were presented. The discussion of these papers were adequate.

Dr. Thomas McDavitt of Saint Paul presented "A Résumé of the Medical Legislation of the Past Year." A brief statement of the laws relating to medicine in forty-five of the states is given and those who may be interested in the status of medical licensure in the various states at this time may read it.

Dr. A. A. Law of Minneapolis read a paper on the utility of the x-ray in surgery, illustrating it with many shadowgraphs of patients of his own and of patients referred to him for diagnosis. The paper was an elaborate one and must have been of great interest to the audience for up to this time, perhaps, Doctor Law was the only physician using the x-ray as a diagnostic procedure. The other papers presented were on the whole excellent but short and the discussion of them as a rule longer than the papers themselves. Apparently Mankato was not a favorable locality for holding a meeting of the Society.

(To be continued in the August issue.)

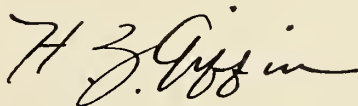
President's Letter

AN important conference was held in Cleveland on April 6, 1942. It was the first conference of its kind ever held in this country. Representatives of the American Medical Association and the American Pharmaceutical Association met to consider the relationship between medicine and pharmacy and to discuss the problems of each, and the principles of proper coöperation. Trends in pharmaceutical practice, the program of pharmaceutical education, and the relationship of both professions to the war and to civilian defense were the topics chiefly considered.

I believe we should all take cognizance of this movement to coördinate the activities of the two professions and in spite of the commercial appearance of the modern drug store, it should be clearly recognized that pharmacy is a profession with a code of ethics quite comparable to the code of ethics of medicine—in fact, that medicine and pharmacy are twin professions. Pharmaceutical education now has a cultural and scientific background. The pharmacist knows that education is a continuous process throughout life. He comes to realize that, as in medicine, service and the good of the patient are the primary considerations. Scientific advances vitally affect both professions. The physician cannot function without the pharmacist and the pharmacist cannot function without the physician. The two professions should coöperate as closely as possible. The physician should use the pharmacist as consultant and the pharmacist should utilize the physician as consultant. As far as possible, consultation should be on a personal basis in order to maintain mutual confidence and disseminate knowledge. In the modern type of drug store, drug clerks and salesmen should, above all others, be instructed to utilize the pharmacist as a consultant. It is estimated that two-thirds of the people rely on self-treatment. The layman frequently consults the druggist and pharmacist because of their accessibility. In this situation, the responsibility of the pharmacist is enormous, and in accepting this responsibility he should be well enough informed in the fundamental principles of therapeutics and public health to give suggestions and at the same time to know the proper limits of advice. With better coöperation in matters of public health the pharmacist can be a great help to physicians, to health departments, and to other agencies concerned in public welfare. I know that the physicians in this state are very much pleased with the activities of the State Pharmaceutical Association, especially, recently, with the way in which its members have assisted by means of window displays on nutrition, immunization and vaccination, cancer and tuberculosis. The pharmacist also becomes an important factor in the organization of civilian defense by reason of his knowledge, his contacts with the public, and his accessibility.

There is a constant pressure on the pharmacist who becomes proprietor to forget the ideals of pharmacy. The pharmacist works in an environment of commercialism and commercialization and must struggle to maintain his attitude as a professional man. It is absolutely necessary that physicians do all they can to counteract this influence and to assist the pharmacist in his efforts to keep pharmacy clean and progressive and on a professional basis.

I have suggested to the State Pharmaceutical Association at a recent meeting that a conference be arranged between representatives of the State Pharmaceutical Association and the State Medical Association, probably through the interprofessional relationship committee of each organization, in order that a set of principles and policies be outlined. The shortcomings of both the physician and the pharmacist, each in his relations with the other, can be considered and methods for their correction recommended. Movements for the promotion of public welfare can be sponsored and questions of medical and pharmaceutical education can be clarified. This should form a practical basis for active coöperation and mutual assistance.



President, Minnesota State Medical Association

EDITORIAL

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL
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BUSINESS MANAGER
J. R. BRUCE

Volume 25 JULY, 1942 Number 7

PROCUREMENT AND ASSIGNMENT COMMITTEE

LONG before war was declared the medical
profession took stock of its man power and
compiled voluntarily a very complete file of its
membership and the qualifications of each mem-
ber. In the event of war the profession would be
ready with the essential information to facilitate
the transfer of a considerable portion of the pro-
fession from civilian practice into the armed
forces.

To avoid a repetition of experience in World
War I, when unregulated voluntary enlistment
resulted in some physicians essential in their civil-
ian practice entering the service and others who
should have volunteered failing to do so, the pro-

fession offered to manage the gigantic under-
taking and procure the required number of men
for the government. A national committee of
physicians labeled the Committee on Procure-
ment and Assignment was appointed to accom-
plish what the name signifies. State and county
sub-committees of members of the profession
were appointed with the idea that local members
were best able to choose who among the local
membership were non-essential in their civilian
practice and were, therefore, available for serv-
ice.

Because voluntary enlistment in the Medical
Corps was not keeping up with requirements,
medical enlistment boards were established
throughout the country similar to the one in the
Lowry Building in Saint Paul, with authority to
grant commissions as lieutenants and captains
without delay. Letters were sent out to those
certified by local Procurement and Assignment
Committees as available, asking them to volun-
teer. Results in Minnesota, and apparently very
generally throughout the country, according to
McNutt's speech before the House of Delegates
of the A.M.A., have been disappointing, and a
little veiled threat was made by the speaker that
drafting of physicians might be necessary.

The mechanism for procuring the requisite
number of medical personnel by means of Pro-
curement and Assignment Committees has so
far failed. The reason was somewhat clarified
by the lively discussion which occurred at the
meeting of the House of Delegates June 28, fol-
lowing an address by Major Wood in charge of
the medical enlistment board in Saint Paul.

The local Procurement and Assignment Com-
mittees have simply certified the members in
their local societies who are non-essential in civil-
ian practice. These constitute a major portion,
in some instances at least, of the local county so-
ciety membership. If all so certified volunteered
the whole purpose of the establishment of these
committees would be nullified. The decision as
to who should and who should not volunteer is
still left to the individual. The difficulty of the
individual in deciding the question, and not neces-
sarily lack of patriotism, accounts for much of
the lagging in enlistment.

It has been suggested that Procurement and Assignment Committees establish quotas for all the states and sub-divisions, and each local committee with a definite quota to fill select those who can best be spared and bring pressure on them to enlist. If this method does not bring results, and we know that in certain individual instances it will not, the local committees are the logical agencies to designate to Uncle Sam who should be drafted. The medical profession has never been found lacking in patriotism and it can be expected that with specific quotas as objectives the profession will respond in sufficient numbers.

THE MEULENGRACHT DIET FOR BLEEDING PEPTIC ULCER

IT has been generally accepted for some years that the medical and not surgical treatment is best for bleeding peptic ulcer. A patient suffering from loss of blood is not a favorable operative risk and frequently the operative treatment is met with technical difficulties. So-called medical treatment with blood transfusion when necessary has proven highly satisfactory.

Medical treatment has been directed toward not disturbing clotting of the bleeding vessel. One procedure has been no food or drink of any kind for twenty-four or forty-eight hours, supplying needed fluid parenterally. This was on the assumption or hope that an empty stomach is lacking in peristalsis (something which has never been proven) and is slow in gastric secretion, although not free of hydrochloric acid.

Sippy's recommendation was the administration of milk on the hour and large doses of alkalis on the half hour for the purpose of neutralizing the stomach acid and thus preventing the digestion of the clot of the ulcer.

Several years ago Meulengracht¹ reported successful treatment of hematemesis and melena with food. His observations that sometimes such patients stopped bleeding when given food and that often ambulatory patients recovered from melena without making such change in their diets led him to try frequent feedings of a variety of foods in these cases. The patients were urged to eat as much and as frequently as they desired even on the first day of their bleeding, not only

bland food such as pureed vegetables, white bread and butter, rice and tapioca puddings, but also of meat balls, broiled chops, fish balls, apple sauce and stewed apricots with some alkali, belladonna and iron interspersed. Emphasis was laid on food and more food and not so much on alkalis.

In 1939 Meulengracht² further reported on his success with his rather bold innovation. In a series of 491 cases of "profusely bleeding ulcers" there were ten deaths, a mortality of about 2 per cent. One of these ten died following perforation and four died before they had time to eat. The mortality was admittedly low.

When confronted with a patient suffering from a bleeding peptic ulcer and vomiting blood, one might be excused from ordering a full meal and urging the patient to eat. You can lead a horse to water but you can't make him drink, and we suspect eating a full meal would be and was a physical impossibility for some of his patients. Nor do we see any advantage gained by the immediate administration of such a diet.

Meulengracht has, however, shown that food at frequent intervals is successful in the treatment of bleeding ulcers. Undoubtedly another contribution he has made which is fully as important is the confirmation of the idea that a more liberal diet in the treatment of ulcers in general promotes more rapid recovery. The early reliance on large amounts of alkali and greatly restricted diets over long periods of time undoubtedly has resulted in prolonged convalescence.

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GOVERNMENT SAVINGS BONDS

FINANCING our war effort is one of the jobs which we have to handle on the home front. In addition to tax payments, this assignment calls for at least 10 per cent of all individual incomes to be invested in United States Savings Bonds.

Individual quotas can and must be met. Organizations and associations likewise are accepting their responsibility in the fiscal program. And the opportunity for sharing the load has been stepped up for all large investors whether they be individuals or groups.

The present limit of \$5,000 in individual hold-

ings of Series E Bonds purchased in any calendar year will continue. These are the "People's Bonds" which can be purchased only by individuals and may be registered in the names of one or two persons or in the name of one person with a second listed as beneficiary.

The Series E Bonds range in cost price from \$18.75 to \$750. At the end of ten years the smallest of this series pays back \$25 and the largest \$1,000. This is a return equivalent to an annual interest rate of 2.9 per cent. The Series F Bonds, like the Series E, are appreciation bonds. Unlike Series E, they may be bought by institutions and clubs. The smallest costs \$18.50 and pays back \$25 at the end of twelve years, the largest costs \$7,400 and pays \$10,000 at maturity, a return equal to a 2.53 annual interest rate. The Series G Bonds, unlike E and F, are current income bonds which are issued at par and draw interest of 2.5 per cent a year during their twelve-year maturity period.

The value in making a good investment of one's dollars would be reason enough to buy War Savings Bonds. But one can't forget the need for this money in our nation's fight for victory. Nor can one forget that putting money into bonds is one way in which each individual can help in the attack on inflation.

SPLINTING BEFORE TRANSPORTATION

EVERY city and township in the state that boasts an ambulance would do well to follow the example of Minneapolis by passing an ordinance requiring not only the carrying of arm and leg fracture splints, but also requiring that the driver or attendant of the ambulance know how to apply them.

The common sense of such an ordinance should be obvious to any layman but especially so to a physician. Careless handling of a broken extremity only adds to the seriousness of the injury. The acquiring of sufficient knowledge of how to apply a splint before transportation to a hospital is not difficult. The equipment of ambulances with splints is not an expensive proposition and would pay large dividends.

Dr. Roscoe C. Webb has been the chairman of the state committee on fractures for a number of years and it was through his efforts that the Min-

neapolis City Council finally passed the ordinance. The passage of similar ordinances in other localities will doubtless depend on the initiative of members of the medical profession in calling the matter to the attention of local authorities.

DILAUDID ADDICTION

OUR attention has been called to the fact that the Minnesota State Board of Medical Examiners has been forced to suspend or revoke the medical licenses of a half dozen physicians for addiction to dilaudid.

Dilaudid hydrochloride (dihydro-morphinone hydrochloride) is closely allied to morphine, both chemically and pharmacologically, having the same analgesic property and the same depressant action on the respiratory system. Its action on the intestine may be less marked than that of morphine. On the other hand the ratio between effective doses of morphine and dilaudid and toxic doses is about the same.

When dilaudid was first available to the profession, the impression was given that there need be little fear of its producing addiction. This is not true. In the experience of the Board of Medical Examiners addiction to dilaudid is even more difficult to overcome than addiction to morphine.

A word to the wise is sufficient.

HOSPITAL GROWTH TRIPLED OVER THIRTY-ONE YEAR AVERAGE

American hospitals grew three times as fast last year as during the previous thirty-one years, according to the twenty-first annual hospital survey of the Council on Medical Education and Hospitals of the American Medical Association.

For thirty-one years, the report says, the average net increase in hospital facilities was around 25,000 to 30,000 beds each year. The increase between the censuses of 1940 and 1941 was 98,136 beds, which is "astounding even for this unusual period."

This growth, the report continued, is equal to construction of one 269-bed hospital every day, Sundays and holidays included, for a year.

Total capacity of registered hospitals was 1,324,381 beds and 66,163 bassinets. There are 98,136 more beds and 4,224 more bassinets than a year ago; reports were received for 6,318 registered hospitals out of a total of 6,358.

Results of a survey in January of this year of blood and plasma banks in approved hospitals showed that 462 of 1,070 such hospitals either had one or the other of these facilities or were in the process of establishing them.

Two hundred and six hospitals maintain both blood and plasma banks, with seventeen others in the process of development. In addition, there are 171 hospitals operating plasma banks and thirty-three separate institutions with blood banks.—*Science News Letter*, April 25, 1942.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

Minnesota State Medical Association
George Earl, M.D., Chairman

WARTIME MEETING AT ATLANTIC CITY

The war and its effect upon the practice of medicine occupied the time and attention of delegates to the American Medical Association to the virtual exclusion of all save routine business at the Atlantic City session.

Important conferences on medical insurance plans and on legal medicine provided opportunity for some discussion of vital social, economic and political problems but significant official action on such matters inevitably gave place on the floor of the House of Delegates to more pressing matters related to medical participation in the war.

Highlighted in the proceedings was the announcement by Paul V. McNutt, Director of Man Power, concerning the army's urgent need for physicians with the armed forces.

Medical Officers Needed

The original estimate of 25,000 needed by December 31 has been increased this year. Removal of this unprecedented number of men from civilian practice will entail new hardships for those who remain at home as well as for those who are forced to leave their practices to enter the service. Rigorous rationing of medical service to cover vital needs in industry and the health services, as well as in the civilian population, will undoubtedly be necessary and allocation of men from the Procurement and Assignment Service registry is expected to follow where it is necessary when military needs have been met.

Draft Threat

Minnesota's contribution of men to the Army, Navy and Marine Corps has been outstanding among the states but more are required and the clear implication of McNutt's address in Atlantic City was that exceptional methods will be used all over the country to induct younger physicians in-

to the service if voluntary applications fall short of the required number.

Those who wait for the draft or other compulsory methods may be commissioned in time but all authorities agree that they run the risk of indefinite delay after induction. Those who are classified in 1A, especially, face the possibility of being forced to give regular medical service as noncommissioned officers or privates. The Army is rolling up into a formidable impersonal machine in which there may be no consideration for the individual who has waited too long to apply for a commission.

The best advice obtainable is that all physicians who are 44 or under should be making plans now to enter the service. All will inevitably be in the fighting forces soon, according to official information on the subject, if the war effort continues on the present scale.

TWO-YEAR MEDICINE

The shortage of doctors for the military forces, obviously serious enough in itself, may have unforeseen repercussions.

There is a definite possibility that the government may undertake to establish its own schools of military medicine with courses limited to two years. The proposal was discussed in Congress recently by New York's Samuel Dickstein who, as sponsor in the House for the Army pay legislation, may be considered to have the ear of the War Department.

Congressman Dickstein proposed an abbreviated course with emphasis chiefly on military surgery, open to candidates with two years of pre-medical training, to be nominated, as candidates for West Point and Annapolis are now nominated by Congress. He envisioned nine of these schools, one for each corps area, which would turn out physicians rapidly and in large numbers. After the war is over, he proposed to use

these men for government services of all sorts including the Veterans' Administration, the United States Public Health Service and government health insurance services, if and when government health insurance becomes a fact.

Discrimination Charged

Justification for the bill would be the need for doctors in the Army which is not now being met by civilian physicians and also the social and racial discrimination which the Congressman charges against medical schools of the country. This discrimination has prevented hundreds of well-qualified students, in his opinion, from entering medicine.

The charge of discrimination made by Dickinson is obviously absurd; but the bill which he plans to sponsor should not be dismissed lightly by physicians and educators who have worked devotedly to bring standards of medicine to their present level in the United States.

Threat to Present Standards

Those who cherish our system of education and practice will undoubtedly do all in their power to see that urgent military needs are met among physicians who have qualified according to present high standards of training. Otherwise it is obvious that extraordinary methods will be taken and the presence of hundreds of half-trained men with commissions in the Army Medical Corps would virtually guarantee a new and regrettable era in post-war medicine in the United States.

A. M. A. CENSUS

Some interesting figures about the physicians of the United States have been secured as a result of the census taken by the American Medical Association's Committee on Medical preparedness.

These figures, some of them never available before, were reported by the committee in Atlantic City. About 158,000 out of the total 180,000 listed in the 1940 American Medical Directory, or approximately 86 per cent, filled out and returned the questionnaire. For the remaining 22,000 who failed to do so, incomplete schedules were filled out in the Bureau of Medical Economics or at the headquarters of state medical associations with all available information so that the punch

card file would contain at least a minimum of information about every physician in the United States.

It is obvious, of course, that deaths, changes of address and practice and new admissions make constant changes necessary and from the beginning of the census a routine has been established for making alterations as soon as information is received.

As a result of two years' effort, records and punch cards are now on file for more than 181,500 physicians in the United States and its outlying territories and possessions. Of this number some 176,000 are located in continental United States.

Specialists Outnumber General Practitioners

As of January 31, 1942, 85,964 of these were in general practice and 90,227 specialists (including those classified as fully qualified specialists devoting their full time to a specialty and physicians who devote only special attention or a part of their time to some special branch of medicine). The ratio of full-time specialists to special attention physicians is about 43 to 57.

The total number of physicians engaged in full-time appointments was found to be 7,216. Of these, 2,816 hold teaching appointments, 910 are engaged in full-time research work, 1,179 hold executive positions and 2,243 are engaged in full-time work in industry. Many of the latter are not actually caring for the sick or injured though they are contributing to the health of the industrial population.

In Government Service

The total numbers of physicians employed in some form of government service as of July, 1940, was 9,819, but this number is thought to have changed considerably in the last two years. In public health there were:—U. S. Public Health Service, 1,789; state health departments, 1,410; local health departments, 2,341; Veterans' Administration, 1,779; Indian Field Service, 910; other federal agencies, 2,293.

In hospital service there was a total of 16,457 physicians; in hospital administration, 3,089; as residents, assistant residents and fellows, 6,149, and as interns, 7,219.

Private Practice Leads

A total of about 142,700 physicians of all ages were classified as engaged in private practice. Among the total number in practice in the con-

continental United States, 164,488 were white male, 8,035 were white female, 3,362 were Negroes (both sexes) and 306 of other races.

In January, 1942, there were 42,721 physicians under 26 years of age in continental United States; 38,212 between 36 and 44 inclusive; 31,904 between 45 and 54 and 63,354 were 55 and older. There were 3,942 who were 80 or older, 255 who were 90 or over and exactly 6 who were 100 years or older.

Military Qualifications

Of the 112,800 physicians of military age, many, of course, cannot qualify for full military service and others cannot be spared since it is obvious that the 63,354 physicians who are 55 years of age and older cannot be expected to supply all of the medical services needed by the civilian and industrial population, even when reduced by the removal from the ordinary population of several million men in the armed forces.

Shortages

Among significant discoveries made on the basis of the census was the fact that the number of qualified physicians in certain specialties is so small that when military and civilian needs are considered there appears at once a serious problem in the equitable distribution of the available supply. Among these are neuro-surgery, plastic and maxillofacial surgery, orthopedic surgery, thoracic surgery, neurology, anesthesia, pathology, clinical pathology and bacteriology. There is likewise a serious problem, apparently, in the supply of qualified physicians for certain services in industry.

Used for Clearance

When the Procurement and Assignment Service was organized in October, 1941, the census material which had been arranged in listings was put to practical use in the clearance of physicians who had applied for commissions in the Medical Corps. The medical preparedness section of the Bureau of Medical Economics was designated as the Consultant Office of the Procurement and Assignment Service and, to date, 13,468 names have been cleared for commissions. Of these, 100 were Negro physicians and 1,753 were marked for assignment to the Air Corps.

Use of the census is being made now by several of the Medical Recruiting Boards set up recently to receive applications for commissions

in the Medical Corps and by state Procurement and Assignment Committees. It was also used to clear the names of 7,000 physicians in general practice and the specialties for the Selective Service System in connection with its program of rehabilitation.

MALPRACTICE AND DIAGNOSIS

From the address of Hubert Winston Smith, Associate in Medico-Legal Research, Harvard Law School and Harvard Medical School, on "Legal Responsibility for Negligent Diagnosis" delivered at the American Medical Association meeting at Atlantic City:

"It is my personal opinion that something like 70 per cent of all malpractice claims involve failure of the fact-finding function of the physician. Breach of the primary duty of investigation leads on to such secondary medical derelictions as improper treatment, injurious advice, failure to treat supervening complications, failure to give proper warning of special instructions to patients, nurse or interns, premature discharge of the patient, premature, delayed or unnecessary medical or surgical treatment and administration of contra-indicated anesthetics. . . .

"False Rumor"

"Recently, I noticed this statement in a medico-legal writing: 'Errors in diagnosis are errors in judgment and are not actionable, but errors of omission such as imperfect records, incorrect administration of treatment and so forth, are questionable and the final disposition of the case rests with the jury.'

"It would be a pity for this mistaken impression to gain credence and circulation among medical men. I shall try to clip the wings of such a false rumor before it flies too far. All negligence in medical practice can be analyzed functionally. We can truthfully say that such negligence always consists of a dereliction in discharge of the fact-finding function or of a dereliction in applying treatment. . . .

"Malpractice cases involving 'failure of the fact-finding function' have now come before appeal courts in England, the several dominions and all of the states in United States except Nevada and Delaware.

Should Take Inventory

"The practitioner should take an inventory of his own diagnostic qualifications in terms of the 'average level' or standard of medical practice in his own or similar localities. The following injunctions and suggestions may be worth noting:

1. Approach the identification of disease from the standpoint of differential diagnosis.

2. Offer a prayer when making a diagnosis but do not omit to take a history or to do a physical examination. Apply indicated procedures remembering that a trustworthy diagnosis should be established within a reasonable time.

3. Disclose the need for a consultant to the patient or the lack of proper instrumentalities. Association of a consultant is usually equivalent to reference when one doubts his own competency but need for special apparatus may call for prompt hospitalization.

4. Keep at least memorandum records.

5. If an independent technician is to be used constitute this person an employe of the patient by getting the latter's consent and by mentioning the fact that the fee is separate since the technician is not connected with the attending physician.

6. Pay just regard to the patients' own self-diagnosis, particularly diagnosis of pregnancy in a multiparous woman.

7. Confirm or refute diagnostic opinions of previous physicians but do not adopt them without independent examination.

8. Check x-ray films to see that they cover the area ordered photographed.

9. Do not destroy x-ray films or records; this creates an unfavorable impression in jury trials and may warrant an inference that the evidence was suppressed because favorable to the patient's contention.

"Remember that the duty of diagnosis is a continuing one calling for subsidiary surveillance throughout treatment and confirmation or discovery of complications. Reappraisal of the original diagnosis is called for when it is thrown into doubt by new facts reasonably discoverable in following the case.

"Remember, also, that even outstanding men may be derelict and jurors are not so tolerant of mistakes in diagnosis as of some other derelictions."

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. Du Bois, M.D., Secretary

Little Falls Quack Sentenced to 2½ Year Prison Term for Attempted Grand Larceny

Re: State of Minnesota vs. Stanley S. Piotrowski.

On June 18, 1942, Stanley S. Piotrowski, fifty-five years of age, 209 Third Street, Southwest, Little Falls, Minnesota, was sentenced by the Hon. Don M. Cameron, Judge of the District Court, to a term of up to two and one-half years at hard labor in the state prison at Stillwater. Piotrowski, who holds no license of any kind in Minnesota, nor elsewhere, had entered a plea of guilty to an information charging him with the crime of attempted grand larceny in the second degree. In sentencing the defendant, Judge Cameron referred to him as a "common imposter."

In a joint investigation made by County Attorney Austin L. Grimes of Morrison County, Sheriff Wm. J. Butcher of the same county and a representative of the Minnesota State Board of Medical Examiners, it was learned that the defendant had obtained various sums of money from a dozen families in Little Falls and nearby on his promise to cure a variety of ailments ranging from arthritis to cancer. The fees charged amounted to \$50 in some cases. For this the patient would receive some "medicine" prepared by Piotrowski under the name of the S. P. Glegonias Medicine Co. Piotrowski was arrested June 1, 1942, by Sheriff Butcher and upon being arraigned in Municipal Court before Judge Phil S. Randall, demanded a preliminary hearing which was set for June 18. Judge Randall fixed bail at \$2000.00 upon recommendation of County Attorney Grimes. The defendant was unable to raise the bail and he was ordered to jail. After two weeks in jail Piotrowski decided to plead guilty.

The investigation also disclosed that Piotrowski was arrested in Saginaw, Michigan, July 27, 1931, for vagrancy and received a 30-day sentence. On October 2, 1937, the defendant was sentenced to a six-month jail term at Stevens Point, Wisconsin, for practicing medicine without a license. The defendant stated he came to Little Falls in the fall of 1941 from Le Center, Minnesota, where he claimed he had worked on a farm. Piotrowski told the Court he had an eighth grade education and that his occupation was "farming."

The Minnesota State Board of Medical Examiners wishes to emphasize the splendid coöperation received from County Attorney Grimes and Sheriff Butcher in this case and others of a similar nature. This marks the third successive medical prosecution handled by them in the past two years in which cases all of the defendants were convicted and heavily fined or sent to prison.

TUBERCULOSIS IS AN OLD AND DANGEROUS ENEMY

It lies in wait particularly for the young adult, whose services today and after the war must be of supreme value to the nation. Tuberculosis always increases in wartime, and measures must be taken now if the increase that we may expect in the near future is to be stemmed. Existing tuberculosis services deal with those who have symptoms of disease, or who feel ill. A new advance is now needed. This means finding cases in which the disease has started, but not yet caused the patient to feel ill. Often nothing may be necessary other than careful watching; in some, short treatment is required, but in all cases there is better hope of eradicating the disease.—From *Bul. Nat'l Assn. Prev. Tuber.*, Eng., Jan. 11, 1942.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

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INDUSTRIAL HEALTH

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STALKING TUBERCULOSIS

The field of Industrial Medicine has in the last few years expanded rapidly. This expansion has been definitely exploited in the proceedings of the Fourth Annual Congress on Industrial Health, held in Chicago, January 12-13, 1942. This report comprises twenty-four separate papers dealing with subjects covering medical and surgical activities in industry, from "Traumatic Surgery" to the "Indiscriminate Administration of Vitamins to Workers in Industry."

There are many conditions and factors which constantly modify or influence Industrial Medicine. The Council on Industrial Health in 1940 stated that a properly administered health program should:

1. Prevent disease or injury in industry by the establishment of proper control over industrial environment;
2. Promote restoration to health and earning capacity as promptly as possible after industrial injury or disease;
3. Conserve the health of workmen through physical supervision and education."

"These are expressions concerning scopes and not of specific functions."

This program was constructed in peace times and primarily its object was to promote the physical welfare of every worker.

Now we are at war! Conditions have suddenly changed. Never before has the manpower of America been so carefully scrutinized. Never before have the local, state and national organizations interested in preventive medicine been more vigorous.

Mr. Paul V. McNutt, Federal Security Administrator, Washington, D. C., who addressed the House of Delegates at the American Medical Association, Atlantic City, June 8, 1942, stated, "We are now engaged in the total 'diagnosis' of America's manpower needs."

What are these needs? The answer is obvious—manifold! These needs must necessarily be considered in small groups or separately.

Among the many needs is the ever-present need of Tuberculosis case finding in all walks of life.

In a communication, dated June 20, 1942, from the Hennepin County Tuberculosis Association, I quote, "The most extensive Tuberculosis survey ever attempted is now being carried forward by the army and navy physicians who are x-raying for tuberculosis one-twenty-fifth of the entire population."

Tuberculosis must be kept out of the army and defense industries, not only in times of war, but also in times of peace. How can this be done? There is but one answer—universal registration by x-ray films.

The *Bulletin of the Hennepin County Medical Society*, February, 1942, carries a "Statement of Student Tuberculosis Survey," issued under the supervising committee of the Hennepin County Tuberculosis Association, which gives complete information regarding the study of tuberculosis among the 3,376 senior students to graduate in 1942. It is hoped parental consent will be unanimous and that every student will have the advantage of the portable x-ray unit with which the miniature film inspection of the chest is made.

The article entitled "Tuberculosis Case Finding in Defense Industries" is as follows:

A photofluorographic unit for tuberculosis case finding in war industries has been assigned to North Carolina. A second unit is now being prepared for service in New Jersey.

Requests for the use of these units should be made through the state division of industrial hygiene to the Division of Industrial Hygiene of the National Institute of Health, Bethesda, Md. A waiting list will be maintained at headquarters and requests filled in order of receipt, consideration being given to the impor-

tance and location of the industry making the request.

Personnel accompanying each unit includes a medical officer trained in interpreting 35 mm. films, a medical technician and a clerk. A portable condenser discharge x-ray machine has been added to the equipment, thus making it possible to obtain 35 mm. films in the absence of 400 milliamperes x-ray equipment. The U. S. Public Health Service will maintain the equipment and furnish x-ray films and developing supplies, repairs and replacements.

At the end of each survey of a particular industrial plant, a statistical and narrative report on the extent and result of the survey will be sent to the state health officer and plant medical director, after clearing the Division of Industrial Hygiene, National Institute of Health, and the States' Relations Division, U. S. Public Health Service. The films will be retained as permanent records in the Office of Tuberculosis Control of the Public Health Service. (Jour. A.M.A., June 13, 1942, page 568.)

In Rochester, New York, various authorities cooperating have set up a health project for the trainees attending vocational classes for war industries conducted by the Rochester Board of Health.

Full details of this interesting activity are incorporated in the paper entitled "Medical Aspects of Vocational and Industrial Training" by Dr. W. A. Sawyer (Fourth Annual Congress of Industrial Health). He states, "Following the medical examination, a preliminary rating is made in accordance with the following standards:

- I. In good physical condition—fit for any job.
- II. Having minor physical defects—fit for most jobs.
- III. Having major physical defects or conditions needing correction.
- IV. Having a disqualifying defect or physical condition which would be hazardous to the man or make it impossible for him to succeed at the job."

"Nine hundred and twenty-eight (33 per cent) were found to have positive tuberculin skin tests and were referred for chest x-ray examinations. Seventeen cases of tuberculosis were discovered, six of which were active."

From the above references and the wide sphere in which search for tuberculosis is being made, and the methods used, particularly the miniature x-ray film in civil, educational, army and navy activities, it would appear that the use of this type of apparatus under proper supervision would be the ideal method of examining industrial workers. It should be a part of the pre-employment examination as well as the periodic examination. It would appear also that under proper supervision that small industries could receive the benefit of such examination of their employes without great expense as well as larger industries.

It will be interesting to watch the result of the work being done in North Carolina and New Jersey which was quoted above.

Locally, should it be available, it would seem worth while to consider appropriating the idle x-ray unit of the Hennepin County Tuberculosis Association during the summer months for industrial tuberculosis survey.

ARCHA E. WILCOX, M.D.

CLINICAL-PATHOLOGICAL CONFERENCE

(Continued from Page 563)

nodules almost resembled the simple adenomas commonly found in portal cirrhosis. The tumor cells function, i.e., they produce bile. This is why the tumor tissue is greenish-yellow in color. Apparently the tumor arises in many places in the liver substance almost simultaneously.

There is still considerable controversy regarding the relation between chronic alcoholism and portal cirrhosis. The most common hepatic change in chronic alcoholics is a fatty liver. Most clinicians insist that most individuals who develop portal cirrhosis give a history of alcoholism but many pathologists take the opposite view. There is now some experimental evidence to indicate that there may be a relationship, for when depancreatized dogs are maintained with insulin they develop a fatty liver which may be depleted of its fat by the administration of lipocae. If this experiment is done repeatedly, the dog also develops portal cirrhosis. It is, of course, well known that portal cirrhosis is common in some parts of the world where alcoholic beverages are unknown. Almost invariably the liver, which develops a primary carcinoma, is a cirrhotic liver. The blood in the abdominal fluid probably came from necrotic tumor nodules which hemorrhaged.

Anatomical Diagnosis: (1) Portal cirrhosis; (2) primary carcinoma of the liver; (3) ascites; (4) bronchopneumonia.

PROCEEDINGS of the MINNESOTA ACADEMY OF MEDICINE

Meeting of May 13, 1942

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, May 13, 1942. Dinner was served at 7 o'clock and the meeting was called to order at 8 o'clock by the President, Dr. Martin Nordland.

There were 46 members and 1 guest present.

Minutes of the April meeting were read and approved.

There was no business, either new or old, to come before the Academy, so the scientific program followed immediately.

Dr. Erling W. Hansen, of Minneapolis, read his Inaugural thesis on the above subject. Lantern slides were shown.

EYE LESIONS IN LEUKEMIA

ERLING W. HANSEN, M.D.

Minneapolis

The first description of eye lesions in the leukemias was made eighty years ago. Since that time a number of papers have been written, mostly describing the fundus lesions found in isolated cases or in several cases. Most of the others deal with chloroma, an interesting though usually rapidly fatal form of myelogenous leukemia, characterized by greenish colored myeloblastic tumors having a special predilection for periosteum and bone, particularly the skull.

We have reviewed the eye findings recorded in 100 cases of leukemia seen at the University Hospital in the past five years. Our findings are only those recorded in the general examination of the patient, or in consultation reports of special examinations. On more than half of the 100 cases there were eye changes noted though no special study had been made of the patients for the express purpose of recording all eye changes. Some of the patients, especially the small children with acute leukemias, have no recorded eye examinations, probably because they were very acutely ill on admission and lived only a short time.

For this reason, no attempt has been made to give percentages of various lesions found. Borgeson and Wagener³ in 1929 reported the changes found in 138 cases at the Mayo Clinic, finding retinal changes in 70 per cent of the acute and 63 per cent of the chronic cases. They were present in 87 per cent of the myelogenous group and 34 per cent of the lymphogenous. They quote the statement by Foster Moore¹⁰ that few if any patients died of leukemia, lymphogenic or myelogenic, acute or chronic, without at some time showing ocular manifestations. The studies of Gibson⁶ would seem distinctly to indicate that the amount of retinal hemorrhage is dependent on the severity of the anemia

and not on the number of cells shown in the white count.

In this series there were twenty-nine cases of acute lymphogenous leukemias, six classed as subacute lymphogenous, and twenty-four chronic; seven acute myelogenous, two subacute and thirty chronic myelogenous. Two were classed as aleukemic lymphogenous leukemia. Of the acute lymphogenous, twenty-six were under fifteen years of age, the other three being nineteen, fifty-one, and fifty-nine. Of the subacute and chronic lymphogenous only three were under fifteen and eight under fifty years of age; leaving twenty-two cases over fifty. In the seven cases of the acute myelogenous group, the ages varied widely from three to sixty. In the subacute and chronic, four were under fifteen, the youngest four; three between twenty and thirty; four were thirty to forty; seven were forty to fifty; nine were fifty to sixty; five were sixty to seventy. An analysis of the pathology presented does not indicate there is any material difference in the findings from an age standpoint.

The pathology found in various parts of the eye and adnexa:

Lids.—Ptosis of one upper lid was seen in one chronic lymphogenous, one acute myelogenous; ptosis of both upper lids in one of the cases of aleukemic lymphogenous leukemia. Horner's syndrome was present in one case of acute myelogenous leukemia and in the aforementioned case of aleukemic lymphogenous leukemia. Edema or generalized infiltration of the eyelids was seen more often in acute lymphogenous leukemia, five cases, although it was also present in both acute and chronic myelogenous leukemia. One of the acute lymphogenous leukemias showed also a hematoma in one lid, and another purpuric spots. Distinct nodules were present in two cases of acute lymphogenous leukemia, one of acute myelogenous and one of chronic myelogenous. These nodules are more often found in lymphogenous leukemias, being classed as lymphomata such as occur in the skin. Mickulicz disease was the original diagnosis of one boy of four who had involvement of the lachrymal and parotid glands and testicles. This was proven to be acute lymphogenous leukemia.

Globe.—The conjunctiva was described as yellow or icteric in cases in each group. Subconjunctival hemorrhages were present in a small number in each of the acute and chronic lymphogenous and the acute myelogenous. Some degree of proptosis was present in two cases of acute myelogenous and one of chronic myelogenous leukemia.

Leukemic growths are a not uncommon cause of proptosis, occurring unilaterally or bilaterally. O'Brien and Leinfelder¹¹ at Iowa City studied eighty-two con-

secutive cases of unilateral exophthalmus, thirty-one inflammatory and fifty-one noninflammatory. Of the latter, seven were due to leukemic tumors. Many of the tumors originate in the region of the lacrimal gland, and may therefore be confused with lacrimal tumors, though they are more often more or less fixed to the periosteum of the orbit. The most typical of these tumors is chloroma, occurring most frequently in children, especially males. As mentioned before, there seems to be a special predilection for the skull, though invading also frequently the sternum, ribs and pelvic bones.

Allison¹ in 1924 reported a case of a three-year-old with nodular growths from the outer canthus of both eyes temporally, with rounded areas over the entire cranium. Incidentally, the early symptoms in this case were painful swelling of the ankles, knees, wrists, which is often a prominent symptom of leukemia in children. Gump, Hester and Lohr⁸ in 1936 reported a case of a man of fifty-five with progressive exophthalmus in both eyes, and a palpable tumor in the orbit below and temporal to the globe, on whom a diagnosis of monocytic chloroma was made. Here, on autopsy, a large tumor was found attached to each globe on the posterior wall, the optic nerve bisecting the tissue. Frost⁹ in 1937 reported a case of a four-year-old boy with a tumor attached to the roof of the left orbit, with a small one in the same position in the right orbit. The tumor from the left eye was removed and showed a dirty green color. Frozen sections helped to establish the diagnosis of chloroma. Blood studies then showed the presence of myelogenous leukemia. Together these papers give a very complete review of the subject of chloroma, with references. A very complete earlier bibliography is given by Bedell² in reporting four cases. I quote from Ernestine Kandel³ in regard to the association of myelogenous leukemia and chloroma "With recent improvements in staining technique and better differentiation of the acute lymphoid myeloid leukemias, almost all the recent cases of chloroma have been reported as cases of myeloid leukemia, several standard texts to the contrary.

"The inevitable association of chloroma with myeloid leukemia should make it obvious that chloroma is simply a variant of myeloid leukemia with the multipotential myeloblast assuming the distinctive role as type cell of an invasive neoplasm."

It was one of these cases coming to the University Hospital that prompted this study.

The case mentioned above was a boy of three, a patient of Dr. Carl Larson first seen at the University Hospital on May 18, 1939. He had been seen by Dr. Frank Burch in consultation. Dr. Burch has told me that chloroma was suspected. The presenting complaint was protrusion of the left eye. One month before admission the parents had noted a "squint" in the left eye. Two weeks later the left eye began to swell and appear more prominent. There were no other complaints.

Examination showed exophthalmus of the left eye, which was displaced downward and slightly inward, with marked limitation of movement laterally and

downward, and no upward rotation. The skin of the upper lid was thickened and red with prominently dilated veins. A firm nodular mass was palpable below the upper orbital rim.

Fundus examination of this eye showed congestion and tortuosity of veins, an elevation of the optic disc of 2 to 4 diopters, and a detachment of the upper portion of the retina extending down to the optic disc. The right eye was normal except for almost complete absence of pupillary reflex to light.

General examination was negative except for findings of palpable liver and spleen, both about two fingers below the costal margin in the corresponding midclavicular line.

The blood picture showed hgb. 54 per cent, erythrocytes 3,200,000; leukocytes 16,400; neutrophils 53 per cent, lymphocytes 42 per cent, monocytes 3 per cent, eosinophiles 1 per cent, basophiles 1 per cent. Subsequent smears showed increasing numbers of myeloblasts and leukoblasts, promyelocytes and basket cells. Two punctures of sternal bone marrow showed acute or subacute myelogenous leukemic changes.

X-rays of the skull revealed no bone destruction around the orbits. Sutures appeared to be slightly separated and convolutional markings increased, suggesting there might be some increased intracranial pressure. There was evidence of a soft tissue mass filling the left orbit. From May 23 through 31, deep x-ray therapy was used on the left orbit with regression of the tumor mass. On May 29 a firm, somewhat tender swelling appeared over the right mandible which increased rather rapidly in size and was also treated by deep x-ray. Roentgenograms showed a considerable destructive process through the mandible on both sides with large cystic areas of rarefaction, probably due to leukemic infiltration.

Blood transfusions of 200, 250 and 200 c.c. of citrated blood were given on May 25 and 26 and on June 4. This raised the hemoglobin but the blood picture remained much the same.

The patient was discharged to the parents June 9 and died on June 10. No autopsy was done.

This is clinically a case of chloroma, although technically that diagnosis cannot be made unless the typical greenish color of the tumor masses is actually seen. The other findings permit our calling it by that name, the significant findings being the orbital tumor causing proptosis of the globe, myelogenous leukemia shown in the blood and bone marrow smears, the invasion of bone, seen in the mandibles, the response to x-ray therapy and the rapidly fatal termination, about seven weeks from the first symptom of squint noted by the parents.

Iris and pupils.—Only two cases, a woman of sixty-six with chronic myelogenous leukemia and a boy of three with acute myelogenous leukemia showed absence of pupillary reaction to light. None had iritis or noticeable infiltration of the iris tissue. Goldbach⁷ analyzed 239 case histories of leukemia at Johns Hopkins Hospital and found pupillary changes in four each of acute and chronic lymphogenous leukemia, three in acute myelogenous leukemia and nine in chronic myelogenous leukemia.

kemia. There was iritis in three of the chronic lymphogenous cases in his series.

Retinal Vessels.—The most marked and constant finding in the vessels is engorgement of the veins with or without tortuosity. In this series this was slightly more marked in the chronic lymphogenous group than in the others. In two of the acute lymphogenous cases there was a noticeably lighter color to the blood. This, in some cases with high cell counts, is rather a striking feature. In some cases, mostly chronic myelogenous, white lines outline the distended veins, perivascular cellular infiltration. In one case of chronic lymphogenous leukemia there was thrombosis of the central vein.

Retinal Hemorrhages and Exudates.—Hemorrhages in the retina, of various size and shape, linear, flame shaped, small or large round hemorrhagic areas are common. It is not strange that retinal hemorrhages are common. Bleeding from the nose, uterus, bowel and kidney and under the skin are prominent early features of leukemia. Characteristic of some of the leukemic retinal hemorrhages are the white centers composed of accumulations of cells surrounded by the red ring of hemorrhage. Borgeson and Wagener felt that in lymphogenous leukemias, the occurrence of retinal hemorrhage may be taken as an indication of a tendency to occurrence of hemorrhages in other tissues. In myelogenous leukemia, retinal hemorrhages do not seem to have the same significance with regard to hemorrhages elsewhere. One of the striking fundus pictures seen in leukemias is that of large preretinal or subhyaloid hemorrhage, seen most often in the macular region. Numerous observers have included preretinal hemorrhage in their findings. In the present series this occurred in five cases, one acute lymphogenous leukemia, one chronic lymphogenous leukemia, two acute myelogenous leukemias and one chronic lymphogenous leukemia. In the acute lymphogenous case, a girl of eight, the eye grounds were watched from February 8 to the time of death on April 29. Original examination showed the veins markedly engorged and tortuous, many small flame-shaped hemorrhages over both fundi, with some more deeply placed round hemorrhages. There was a large preretinal hemorrhage, temporally, in the right eye and in the left eye one nasal and one temporal to the disc. A week later there had been marked absorption of blood, four small hemorrhages appearing on the disc. During the time of observation the hemorrhages could be seen to disappear without leaving a trace, while new ones appeared constantly. We have seen one case of chronic lymphogenous leukemia in which the original symptom bringing the patient for medical attention was loss of central vision due to preretinal hemorrhage.

Exudates seen were not peculiar to leukemia, some being so-called cotton wool patches and others more waxy in appearance, similar to those seen in diabetic patients. There was no preponderance in any one type of case, occurring in one patient of seventeen years, with subacute lymphogenous leukemia, two aged twenty-five and sixty-seven with chronic myelogenous leukemia, one

chronic lymphogenous leukemia, aged fifty-seven, and one acute lymphogenous leukemia, aged fifty-one.

Retinal Changes.—Pallor of the retina was noted in five cases—three of which were in children with acute lymphogenous leukemia, ages two, two and eleven. Moore has reserved the term leukemic retinitis for those cases with a pale or greenish reflex due to leukemic infiltration. Detachment of the retina was seen in one case of chronic lymphogenous leukemia, aged fifty-nine, and in the previously mentioned boy with acute myelogenous leukemia.

Optic Nerve.—While there were several cases recorded as having blurred disc margins, in only one case was there enough elevation to designate it as papilledema. One man of seventy-six with chronic lymphogenous leukemia showed marked pallor of the disc and one woman of 50 with chronic myelogenous leukemia was diagnosed as having optic atrophy. Several of the cases showed some paleness of the disc with other findings such as hemorrhages, without any infiltration of the retina, such a picture as one might see in severe anemias.

Summarizing, the eye lesions encountered in 100 cases of leukemia of all types showed little that would help to differentiate one type from another. Enumerating the lesions in the lids, we find hemorrhages, localized accumulations of leukemic cells both in the lid structure and the lacrimal glands. There may be edema of the lids causing a pseudo-ptosis or true ptosis, or narrowing of lid slits with other manifestations of Horner's syndrome. The globe may be proptosed by tumor formations in the orbit such as lymphomata and chloromata. The conjunctiva may show hemorrhage, an icteric tinge, with or without infiltration of cells. The pupils may show absence of reaction. Fundus examination may reveal a pale or yellowish green background, due to infiltration of the retina with leukemic cells. Detachment of the retina may occur. The veins are often engorged and tortuous, and in some instances the vessels may show white streaks sheathing them. There may be thrombosis of the central vein. One of the most constant findings is hemorrhage in the retina which may take place at various depths or may be massive into the subhyaloid space or actually into the vitreous. Retinal hemorrhages are sometimes characterized by white or yellow centers with red borders. The optic disc may show pallor of anemia, papilledema or atrophy.

Conclusion.—While leukemia is invariably a fatal disease, early recognition may be the means of prolonging life by such treatment as has shown some effect on the course of the disease. The first signs may be related to the eyes so we should be on the alert to recognize lesions which might lead to diagnosis and prognosis in the case of these unfortunate patients.

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Discussion

Dr. R. G. ALLISON, Minneapolis: Dr. Hansen was good enough to mention the case of chloroma which I reported some twenty years ago. This was a little girl whom the late Dr. Wm. Murray was called to see on the North Shore on a fishing trip. He recognized the case of clinical chloroma and brought the child into the University hospital for teaching purposes.

We x-rayed the skull and the long bones of the skeleton. The findings in the long bones were those of a proliferative periosteitis, the new bone being laid down at right angles to the shaft. In fact, any of the bones seen singly would be characteristic of a primary periosteal sarcoma.

I reviewed the literature at that time and found there were no bone findings in chloroma. Since that time, Le-wald of St. Luke's Hospital in New York has reported two cases and Sherwood Moore of St. Louis has reported two additional cases. All of these cases, however, showed different bone findings; so, while bone findings do occur in chloroma, they are certainly not characteristic of the disease.

Dr. Hansen spoke of some of these cases showing widening of the suture lines and lack of closure of the fontanel. I think, as we x-ray more normal skulls, we realize that there is a great variation among the normal cases and consequently it is rather difficult to draw any conclusions from these findings.

I have had two very interesting cases where the eye condition was incidental to the general condition which was recognized beforehand.

Several years ago we had a young boy sent in to us for a chest x-ray. We found a large mediastinal mass which we thought represented Hodgkin's disease or lymphosarcoma. Biopsy of the cervical gland showed typical Hodgkin's disease. The mass was extremely sensitive to radiation and rapidly disappeared. Several days later the boy began to develop localized masses under his scalp. These were about the size of a large lima bean. They were extremely sensitive to radiation and disappeared within twenty-four hours under very slight dosage. Daily blood counts were done on this boy and the blood showed an essentially normal picture. About three weeks later he developed a mass in the conjunctiva which looked like a metastatic tumor. I called Dr. Frank Burch and asked him if Hodgkin's disease ever metastasized to the eye. He answered "No, but lymphatic leukemia does." Within a few days the blood showed the typical picture of an acute lymphatic leukemia.

Several years later, a surgeon referred me an elderly man who had had a biopsy of the cervical gland done at the Mayo Clinic and a diagnosis was made of Hodgkin's disease. He also had mediastinal involvement. We treated both the cervical area and the mediastinum, and the involvement disappeared.

Several years later the man came in to see me with a lesion in his conjunctiva. I sent him back to his referring surgeon for a blood count and he reported to me that the man's blood showed a typical picture of lymphatic leukemia.

I think Dr. Hansen is right about small doses of radiation handling these cases extremely well. We have certainly not found it necessary to employ large doses. Almost invariably they die later of Hodgkin's disease or lymphatic leukemia.

Dr. H. Z. GIFFIN, Rochester: Dr. Benedict expected to be here tonight to hear Dr. Hansen's paper and to discuss it. At the last minute it was found that he could not come.

I am interested in comparing Dr. Hansen's conclusions with those published by Borgeson and Wagener in 1929. At that time it was concluded that retinal lesions were more common in the acute cases than in the chronic cases, and much more common in the myelogenous type of leukemia than in the lymphocytic type. Dr. Hansen agrees that retinal lesions are much more common in the acute cases. However, he finds that lesions are more common in the lymphocytic type than did Borgeson and Wagener. The lesions described are similar in both reports, and all agree that in acute leukemia the retinal lesions are due mainly to anemia. Dr. Hansen finds visual disturbances more frequently than was thought to be the case at the time of the report of Borgeson and Wagener.

I should like to ask Dr. Hansen what percentage of cases in which he suspects leukemia from examination of the eyes prove to be leukemia, and I should like to have him say something more about other conditions in which ocular changes similar to those in leukemia occur.

Dr. W. E. CAMP, Minneapolis: I think Dr. Hansen has covered this subject so well there really is little to be said except to emphasize some of the things he has already mentioned. From the clinical standpoint, the infiltration of the conjunctiva extending up to the limbus and the infiltration of the orbital periosteum are the most important external phase of the disease. It is difficult to explain the sympathetic paralysis unless one figures that the cervical glands are involved by the leukemia, and give pressure on the sympathetic. Dr. Hansen has emphasized the hemorrhages and they are in direct proportion to the anemia and do not depend so much on leukocytosis. The choroid probably shows more infiltration than any of the other eye structures.

Dr. ALFRED HOFF, Saint Paul: Dr. Hansen has called attention to the value of fundus examination in general medical practice, especially in leukemia.

Regarding other diseases presenting changes in the ocular fundi, as discussed by Dr. Giffin, the following is worthy of comment.

A few years ago a man was admitted to the Ancker Hospital with a severe anemia, a high, basal metabolic rate, a palpable liver and spleen, and a soft diastolic murmur. A thyroidectomy had been performed elsewhere about six months previously without relief. He had no temperature except on the first day of his admission. His blood picture was not significant. The question arose as to whether or not this man had a subleukemic condition.

The ocular fundi disclosed numerous small hemorrhages throughout. In the left, there was a large hemorrhage superior and nasal to the disc. The oculist stated that these hemorrhages could be of leukemic origin.

A surprise finding of a subacute bacterial endocarditis was present at autopsy.

How much diagnostic value are we going to obtain from fundi examination in aleukemia and in such allied conditions as lymphosarcoma, especially of the bowels which may terminate in leukemic organ and lymph node infiltration without evidence in the peripheral blood of a leukemic state.

If eye ground changes occur sufficiently early or at all—such examinations might be extremely helpful espe-

cially in a large city hospital where the material is available.

I would like to have Dr. Hansen comment on this phase of the problem.

DR. HANSEN, in closing: The point Dr. Allison makes about the similarity of chloroma and Hodgkin's disease is well taken. I think that was a point which, as I went over this study, became more and more apparent—some of these cases came in as Hodgkin's disease or Mikulicz disease. Clinically they do more or less merge into each other and a fairly large percentage of cases actually do come into the leukemia group. Dr. Allison confirms the fact that the x-ray changes in the skull are pretty well recognized as not of pathognomonic significance in the leukemias.

Dr. Allison also spoke of lymphomas which develop on the conjunctiva—not an uncommon thing; yet in this series of over 100 cases there was not a single case of this type. They sometimes form a fairly large red, soft, fairly acute looking mass which gives on pressure. In some of the others, as we see in the lids and in the skin generally, nodules are quite firm even on the conjunctiva. This difference in consistency depends on the relative amount of fibrous tissue and cellular content. These are especially found in lymphogenous leukemia.

Answering Dr. Giffin's question in regard to percentages of cases suspected from the eye examinations, I don't believe we usually see them first although I mentioned one case with subhyeloid hemorrhages with several smaller hemorrhages, none of which was typical of leukemia, and which on examination proved to be lymphogenous leukemia. The boy I reported—I did not know Dr. Burch had seen him—was suspected of being a case of chloroma in the myelogenous group, though at first we had no such blood picture. That perhaps is one thing I did not stress enough, that we do have difficulties, in early diagnosis especially. We may have a picture of just an increased leukocyte count; there may be immature myelocytes; we may also have an aleukemic leukemia that complicates the picture a good deal. When it comes to actual percentages of diagnoses made from eye findings, I think they would be relatively small.

In the differential diagnosis we have, of course, similar hemorrhages in our vascular-renal disease, in hypertension, in diabetes or hemorrhages that occur in the severe anemias. We have similar hemorrhages occurring in all, depending on the depth in the retina, in which the hemorrhage occurs, linear or flame-shaped in the fiber layers, more round and variable in size in the deeper layers.

As far as exudates are concerned, there is nothing characteristic that we do not have in other diseases, so-called cotton wool and the harder ones such as are seen in diabetes. The only distinguishing characteristics in the fundus are the cellular infiltrations in the retina and in the choroid which give the peculiar greenish sheen to the backgrounds, and the hemorrhages with the white centers which you saw on the screen. In general, examinations of the eye grounds in these cases, or in any case, by the ophthalmologists can be of help in differentiating certain of these lesions, but not much more in the leukemias than those I have spoken of.

The meeting adjourned.

E. V. KENEFICK, M.D., *Secretary*

During the first two years of the war (England) deaths from tuberculosis increased in Glasgow about 41 per cent. The 1941 record shows no improvement. Overwork, strain, ill-spent leisure are thought to be responsible for the rise.—S. LAIDLAW, M.D., and D. MACFARLANE, M.D., *British Med. Jour.*, Sept., 1941.

FEDERAL ASSISTANCE IN CURBING PROSTITUTION

Federal action to help state authorities stamp out prostitution and its gangsters is meeting with general approval in the 27 counties of Tennessee where the May Act was invoked for the first time on May 21, Dr. Ray Lyman Wilbur, president of the American Social Hygiene Association, reported recently at a meeting of the Association's executive committee.

"The American Social Hygiene Association is studying the effects of and public reaction to the application of this new federal law," Dr. Wilbur said.

"Secretary of War Stimson decided to put the Act into effect in coöperation with state and local officials who had been unable to cope effectively with commercialized prostitution under war conditions and with limited laws.

"This Act now puts the challenge clearly before the people of the nation, as well as their federal and state governments, to make use of its authority in addition to already existing social, health and legal activities against prostitution and the venereal diseases. These evils are not problems for solution tomorrow. They must be dealt with today. Military discipline and moral discipline are both essential if we are to have a strong army. They must be maintained."

Newspapers in Nashville and Chattanooga have reported the favorable public sentiment concerning federal participation in curbing organized vice in the Camp Forrest area. The officials of some counties not included in the area are quoted as hoping that the Act will be extended to their counties.

The Nashville *Banner*, in an editorial, says: "The law abiding citizens of middle Tennessee welcome federal action to strengthen enforcement of vice laws. The area has been no exception to that general impact of degrading and demoralizing elements against which the May Anti-Prostitution Act is aimed. To meet such a condition as this requires just such concerted and determined action as now is promised. That action will have the backing of law abiding citizens everywhere."

The May Act, signed by the President, July 11, 1941, provides that it shall be unlawful to engage in prostitution or to aid or abet prostitution within such reasonable distance of any military or naval camp or station as the Secretaries of War or Navy shall determine to be needful to the efficiency, health, and welfare of the Army or Navy. The Act states that such practices shall be a federal offense punishable by a fine of not more than \$1,000, or by imprisonment for not more than one year, or by both. The Act further provides that within such designated areas, the Secretaries of War and Navy, and the Federal Security Administrator are authorized and directed to take such steps as they deem necessary to suppress and prevent prostitution, and to accept the coöperation of the authorities of the states and their counties.

OBESITY FROM GLAND INJURY

Injury to the hypophysis, small but important gland embedded beneath the brain, is capable of causing dwarfism and great bodily fatness, Dr. Albert W. Hetherington of Northwestern University Medical School told his colleagues. . . . His findings were based on experiments with rats, whose hypophyses were purposely injured by surgical means. The rats were subsequently killed and the glands microscopically examined. Five animals, in which the glands had been entirely destroyed, had developed as fat dwarfs; the remaining three, which had small fragments of their hypophyses, had developed normal body length, but these also were very fat.—*Science News Letter*, April 11, 1942.

REPORTS and ANNOUNCEMENTS

MEDICAL BROADCAST FOR JULY AND AUGUST

The Minnesota State Medical Association broadcasts weekly at 10:15 o'clock every Saturday morning over Station WCCO, Minneapolis, Station WLB, University of Minnesota. Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

July 4—Tetanus
July 11—Typhus Fever
July 18—Plague
July 25—Dental Disease

August 1—Dysentery
August 8—Whooping Cough
August 15—Chicken Pox
August 22—Rocky Mountain Spotted Fever
August 29—Diseases of Gums

A.M.A. MEETING

At the annual meeting of the American Medical Association held at Atlantic City, last month, Dr. Fred W. Rankin of Lexington, Kentucky, assumed the presidency and Dr. James E. Paullin of Atlanta, Georgia, was named president-elect. Dr. William J. Carrington of Atlantic City was elected first vice president; Dr. Olin West was reelected secretary and Dr. Herman Kretschmer of Chicago, treasurer. Dr. H. H. Shoulders of Nashville, Tennessee, was reelected speaker of the house and Dr. R. W. Fouts of Omaha, Nebraska, vice speaker.

New members of the Board of Trustees elected are: Dr. Edward L. Pallette of Los Angeles, Dr. Lloyd Nolan of Fairfield, Alabama.

The meeting in 1945 will be in New York City.

AMERICAN CONGRESS OF PHYSICAL THERAPY

The American Congress of Physical Therapy will hold its twenty-first annual scientific and clinical session September 9, 10, 11 and 12, 1942, inclusive, at the Hotel William Penn, Pittsburgh, Pa.

The annual instruction course will be held from 8:00 to 10:30 a.m., and from 1:00 to 2 p.m. during the days of September 9, 10 and 11 and will include a round-table discussion group from 9:00 to 10:30 a.m., Thursday, September 10.

The scientific and clinical sessions will be given on the remaining portions of these days and Saturday morning. A new feature will be an hour demonstra-

tion showing technique from 5:00 to 6:00 p.m. during the days of September 9, 10 and 11.

All of these sessions and the seminar will be open to the members of the regular medical profession and their qualified aids. For information concerning the seminar and program of the convention proper, address the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

MEDICAL AND SURGICAL RELIEF COMMITTEE

The Medical and Surgical Relief Committee of America, with headquarters at 420 Lexington Avenue, New York City, has its state headquarters at the office of Dr. C. C. Kennedy, 807 Physicians and Surgeons Building, in Minneapolis.

The committee would appreciate donations of medical supplies, instruments, equipment or cash from physicians or the laity.

For further information regarding details or shipping instructions the following committee members may be consulted:

Minneapolis—Dr. Claude C. Kennedy; Dr. Owen D. Wangenstein, Dr. Gilbert Thomas.

Saint Paul—Dr. William R. McCarthy.

Rochester—Dr. Donald C. Balfour, Dr. Henry W. Meyerding.

Duluth—Dr. Arthur N. Collins.

Bemidji—Dr. Einar Johnson.

Crookston—Dr. J. F. Norman.

MINNESOTA STATE MEDICAL ASSOCIATION

Officers of the Minnesota State Medical Association elected to serve for the coming year at the meeting just closed in Duluth, include the following:

President—Stephen Baxter, Minneapolis

First Vice President—J. F. Norman, Crookston

Second Vice President—F. W. Lynch, Saint Paul

Secretary—B. B. Souster, Saint Paul

Treasurer—W. H. Condit, Minneapolis

Speaker of the House—W. W. Will, Bertha

Councilor, Fourth District—A. E. Sohmer, Mankato

Councilor, Sixth District—A. E. Cardle, Minneapolis

Councilor, Eighth District—W. L. Burnap, Fergus Falls

Delegates to American Medical Association—W. A. Coventry, Duluth, and A. W. Adson, Rochester.

Alternates—J. C. Hultkrans, Minneapolis and W. L. Burnap, Fergus Falls.

The 1943 meeting will be held in Minneapolis.

WOMAN'S AUXILIARY

Mrs. JOHN J. RYAN, *President*

Saint Paul, Minnesota

Mrs. L. R. BOIES, *Publicity Chairman*

Knollwood, Hopkins, Minnesota

County News

Mower.—The Mower County Auxiliary reports a profitable and pleasant year doing Red Cross sewing and knitting. At each meeting one member has led a discussion in some interesting subject.

On May 12, a dinner was held at the Fox Hotel in Austin in honor of the doctors. The welcome was given by Mrs. W. B. Grise and the response by Dr. J. G. W. Havens. Dr. Paul Leck, who was leaving for service in the air corps, and other doctors who expected to be called soon, were presented with gifts. Bridge followed the dinner.

The Auxiliary sponsored the appearance of Mrs. Rebecca Overmann, State Commander for the Control and Cure of Cancer, May 18. In addition to Mrs. Overmann's address, the film, "Choose to Live," was shown.

Stearns-Benton.—Stearns-Benton Medical Auxiliary recently held its annual meeting at Klock's Cafe in St. Cloud. Mrs. P. E. Barringer, retiring president, presided. Annual reports were given by officers and chairmen. Mrs. R. N. Jones was appointed delegate to the state convention in Duluth, with Mrs. Barringer the alternate.

The following officers were elected: Mrs. R. N. Jones, president; Mrs. William Friesleben, vice president; Mrs. John J. Gelz, secretary; Mrs. T. N. Fleming, corresponding secretary; Mrs. T. W. Hovorka, treasurer; Mrs. John B. Beuning, auditor; Mrs. J. P. McDowell, historian. Committees named were: finance, Mmes. Karl Walfred, M. J. Kern; membership, Mmes. L. M. Evans, S. J. Raetz, E. E. Keithohn; program, Mmes. J. B. Gaida, J. B. Beuning, C. A. Beuning, C. A. Rathbun; hospitality, Mrs. Jennie Hovorka; layette, Mmes. J. C. Buscher, Charles Donaldson; health and public relations, Mmes. J. P. McDowell, T. N. Fleming; publicity, Mmes. P. E. Barringer, William Friesleben; clipping, Mrs. W. W. Wenner, good cheer, Mrs. H. B. Clark.

Goodhue.—The Goodhue Medical Auxiliary puppet show on preventive medicine is consuming much time and interest of its members. To date, showings have been given at Hay Creek, Goodhue, Pine Island, Wamamingo, Kenyon, Cannon Falls rural community, and Cannon Falls high school. An exhibition is being prepared for the state meeting in Duluth.

The April meeting was held at the home of Mrs. J. Brusegard in Red Wing. The following nominating committee was appointed: Mmes. H. Claydon, R. Hedlin, and Nordholm.

In May eleven members were entertained at the home of Mrs. Russell Aanes in Ellsworth, Wisconsin.

Olmsted-Houston-Fillmore-Dodge.—At a recent Health Day Program given at Mayo Foundation House with the Altruistic Club of Rochester, the Olmsted-Houston-Fillmore-Dodge Medical Auxiliary gave some very worth-while facts on nutrition to club women attending.

Dr. R. M. Wilder, and Miss Mary Foley were the speakers.

According to Dr. Wilder, sugar rationing is one of the best health measures that could have been achieved for us and our families. Sugar is so highly refined that what vitamins or minerals may have been present in the cane or beet have been entirely removed. It only makes good foods more palatable. Bad foods have necessitated a nutritional program, and each one of us must make it our personal responsibility to know what kinds and amounts of food are needed for good health. The enrichment of breads and flours is valuable because of important vitamins added, and all women were urged to insist on these enriched products in order that they may be continued. Dr. Wilder scorned the use of soft drinks and candy bars by the public, particularly among children who consumed these products in place of milk and other foods valuable for vitamin, mineral, or iron content.

Miss Foley stressed the importance of developing sound food habits based on proven facts of nutrition and education, and being healthier as a result. She said that most individuals eat enough food from the caloric standpoint, but the food may be lacking in essentials that result in positive health. Milk, meat, vegetables, and fruits are desirable for proper diet. Good food information may be secured through the "Consumer's Guide."

Approximately 100 women attended the program which was followed by tea. Mrs. M. J. Anderson, Medical Auxiliary president, and Mrs. S. B. Shonyo, Altruistic Club president, poured.

At the May meeting of the Auxiliary held at the Mayo Foundation House, Mrs. H. L. Williams was elected president. Other officers elected were Mrs. John M. Waugh, vice president, and Mrs. T. L. Pool, secretary-treasurer. Dr. Jorge de C. Barbosa, a fellow in the Mayo Foundation, gave a talk on his native Brazil.

St. Louis.—Mrs. John J. Ryan, president of the State Auxiliary, was the guest of honor at the annual meeting of the St. Louis County Auxiliary held in Duluth, Tuesday, May 12. She came to confer with members on the State Auxiliary convention.

West Central.—A dinner meeting was held May 13 at Morris by the West Central Auxiliary. Mrs. John J. Ryan, state president, was the guest of Mrs. Allen.

Members of the Auxiliary to the State Medical Association extend to Mrs. John J. Ryan, president, their sincere sympathy in the recent death of her mother.

In Memoriam

Harley James Gunderson

Dr. H. J. Gunderson, formerly of Minneapolis, died at Los Angeles, May 27, 1942.

Dr. Gunderson was born in Sheboygan, Wisconsin, January 19, 1889, where he attended the public schools. He received his medical degree from Northwestern University in Chicago in 1911 and interned at Saint Elizabeth Hospital at Danville, Illinois.

Dr. Gunderson practiced in Minneapolis with his brother, Dr. Nels Gunderson, from 1912 until 1927, when he moved to California. During this period he took postgraduate work in Germany for a year and in China for six months.

He was a member of the American College of Surgeons and the Hennepin County Medical Society when he practiced in Minneapolis. He was also a Mason and for many years was on the staff of the Swedish Hospital in Minneapolis.

Dr. Gunderson is survived by his wife Winifred Coe Gunderson; his son, Harley J. Gunderson, Jr., who will graduate from the Medical School of the University of California in February, 1943; his father, Captain Nels A. Gunderson, of Sheboygan; a brother, Dr. Nels A. Gunderson, of Minneapolis; and a sister, Mabel Gunderson, of Sheboygan.

Philip Allen Halper

Dr. Philip A. Halper, a graduate of the University of Minnesota Medical School in 1923 and well known in the Twin Cities, died April 21, 1942, in Palm Springs, California, of hypertension, at the age of forty-four.

Dr. Halper interned at the Ancker Hospital, Saint Paul, and acted as assistant city and county physician in Saint Paul in 1924-25. He moved to Chicago and became associate ophthalmologist at the Illinois Eye and Ear Infirmary and later attending ophthalmologist at the Michael Reese Hospital and the Mandel Clinic.

Dr. Halper was a member of the American Academy of Ophthalmology and Otolaryngology, a fellow of the American College of Surgeons, a member of the American Board of Ophthalmology and the American Board of Otolaryngology, and an associate in his specialty at the University of Illinois College of Medicine. He was also an associate editor of the *Cyclopedia of Medicine*.

Edward Oscar Thorson

Dr. Edward O. Thorson of Luverne, Minnesota, died at the Luverne Hospital, May 27, 1942, at the age of sixty-seven years.

Dr. Thorson was born at Mount Horeb, Wisconsin, February 15, 1875. After attending public schools there he attended the Mount Horeb Academy for three years, enrolling at the age of fourteen. He clerked in a store in Madison, Wisconsin, for several years and then attended Bennett Medical College in Chicago where he graduated in 1906.

Dr. Thorson began practice at Colton, South Dakota.

JULY, 1942

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In August, 1908, he came to Luverne where he has since practiced.

Dr. Thorson was married in 1907 at Colton to Alma Kleven. After her death he married Laura Shutriet of Charles City, Iowa, in 1931.

Surviving him are his widow and three daughters: Mrs. Theodore Schoon, and Mrs. Jack Kent both of Luverne and Mrs. Ray Fisher of Sioux Falls.

Dr. Thorsen was a member of the Southwestern Minnesota Medical Society, the Minnesota State and American Medical Associations. He was also a Blue Lodge Mason of many years standing, being a member of the Ben Franklin Lodge No. 114 of Luverne.

According to those who knew him, Dr. Thorson, although quiet and unassuming in manner, inspired confidence and close friendships and his passing will create sincere sorrow in a wide circle throughout the country.

UNITED CHINA RELIEF

United China Relief's "unique experiment" in the use of 22 topflight industrial executives, who contributed their time and talents for a three month's period to organize the United China Relief national drive, has been "an unqualified success," Paul G. Hoffman, national chairman, declares in his first progress report to United China Relief committees throughout the country.

Mr. Hoffman reported that to date 1,815 cities had been organized for the drive, and among these, 109 cities had included United China Relief in their war chest and community chest campaigns. He revealed that although the national campaign was only well launched, total funds received to date aggregated \$3,500,000 and \$1,500,000 additional had been accepted in war chest and community chest quotas. He said that already 309 communities organized by United China Relief's "lend-lease" men had exceeded their quotas, having raised over \$1,000,000.

He attributed the general acceptance of quotas and the national support of the campaign in large part to "the great contribution made by industry in loaning us its executives." He added, "Their assignment to the United China Relief job represented a substantial sacrifice by their firms at a time when American industry is in a period of transition aimed at getting into high gear for maximum war production."

In summing up their achievement, Mr. Hoffman pointed out that the funds received so far are close to the total received last year and the number of communities taking part in the drive exceeds by a large number last year's list.

"The successful progress of the drive so far is particularly heartening because China's relief needs this year are more than double those of last year," Mr. Hoffman declared. "The fall of Malaya, Hongkong and Burma have sent back into China a pitiful horde of hundreds of thousands of refugees absolutely penniless and with only the clothes on their backs. What precious personal belongings they tried to bring with them have been stripped from them by rapacious Japanese sentries, and the hardships of their journey home have so weakened them that they are easy prey to disease."

◆ OF GENERAL INTEREST ◆

A son was born to Dr. and Mrs. George X. Levitt of Saint Paul, May 9.

* * *

Parents of a daughter born May 31 are Dr. and Mrs. Karl d'A. Andersen of Minneapolis.

* * *

Dr. and Mrs. John E. Schroepel of Winthrop announce the arrival of their third son, Douglas Arthur, born June 18.

* * *

Dr. Anthony A. Schmitz, who has been associated in practice with Dr. E. G. Nethercott of Pine City, joined the staff of the Mesaba Clinic in Hibbing, June 2.

* * *

Dr. Walter P. Gardner, superintendent of the State Hospital at Anoka, has been made a fellow of the American Psychiatric Association.

* * *

The second Naval Medical Specialists Unit from the Mayo Clinic, consisting of nine members, reported for active duty, July 1.

* * *

Dr. Waltman Walters of Rochester was given an honorary degree of doctor of laws by the Hahnemann Medical College in Philadelphia, June 11. Dr. Walters delivered the commencement address there.

When the annual meeting of the American Orthopedic Association was held in Baltimore, June 3-6, Dr. Wallace H. Cole of Saint Paul was among the speakers. His subject was "Pin Fixation of War Fractures."

* * *

Dr. Myron M. Weaver has been appointed a physician in the University of Minnesota Students' Health Service, and assistant professor of preventive medicine and public health.

* * *

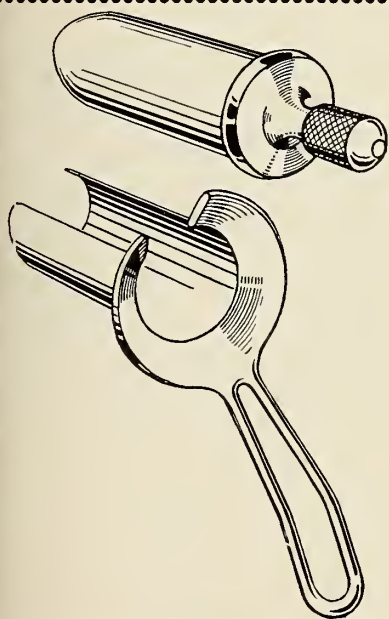
Dr. T. R. Schweiger of the Morsman Clinic in Hibbing left last month for the Great Lakes Naval Training station at Great Lakes, Illinois, where he was commissioned a senior lieutenant.

* * *

Married in the chapel at Fort Sill, Oklahoma, May 22 were Dr. Karl Sandt and Miss Ruth Bloomgren of Minneapolis. Dr. Sandt is a captain in the United States General Hospital Unit No. 26.

* * *

The importance of early diagnosis and treatment of tuberculosis was discussed by Dr. Karl Pfuetze, director of the Mineral Springs Sanatorium at Cannon Falls, before a recent meeting of the Rochester Kiwanis Club.



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Newly elected chief of staff at Fairview Hospital in Minneapolis is Dr. Richard W. Giere. Dr. Lloyd A. Stelter is vice president and Dr. Hoff D. Good, secretary-treasurer.

* * *

Dr. E. C. Strauss, who has been associated with the Biwabik Hospital in Biwabik for the past several months, has entered the service of the United States Navy. He is stationed at the Navy Hospital in Philadelphia.

* * *

Dr. Paul A. O'Leary of Rochester is chairman of the consulting staff of the recently organized Dermatoses Investigations Section of the National Institute of Health.

* * *

Dr. R. K. Minge, who has been associated with the Clarkfield Community Hospital in Granite Falls for several years, has gone to Cleveland, Ohio, where he has accepted a fellowship at Crile Clinic.

* * *

As a representative of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians, Dr. Harold S. Diehl of Minneapolis was in Milwaukee, June 17, to speak at a meeting of the Medical Society of Milwaukee County.

* * *

The name of the Lymanhurst Health Center in Minneapolis has been changed to The Public Health Center, the name Lymanhurst being removed at the request of

heirs of the donor of the property. In the transaction, a quitclaim deed for the property was given to the city.

* * *

Dr. and Mrs. Francis Mark Walsh of Minneapolis are the parents of a son, Michael Francis, born May 6.

Dr. Walsh, who has received his commission as captain in the Medical Corps, United States Army, will leave for active duty about July 18.

* * *

Married in Fort Sill, Oklahoma, early in May were Dr. Frederick B. Mears and Miss Helen Scallen. Dr. Mears, a first lieutenant in the surgical service of the United States General Hospital Unit No. 26, recently was transferred to Camp Custer, Michigan.

* * *

A Rochester man, Dr. Waltman Walters, was chosen vice president of the American Medical Golfing Association at its twenty-eighth annual tournament at Seaview Country Club in Atlantic City, June 8. The 1943 tournament will be held in San Francisco in June.

* * *

Dr. Robert Meyer, associate professor of obstetrics and gynecology at the University of Minnesota, was a special guest, by invitation, of the American Gynecological Society at its meeting in Skytop, Pennsylvania, June 15-17. Dr. Meyer is an honorary member of the society.

* * *

Dr. John A. Paulson, who has been in private practice in Rochester for the past five years, has closed his office, preparatory to entering the services of the army

OF GENERAL INTEREST

air corps medical division. He will study anesthesia at the Mayo Clinic for three months before entering the service.

* * *

When the twenty-fifth annual meeting of the American Broncho-esophagological Association was held in Atlantic City, June 8-9, speakers included Dr. Kenneth A. Phelps of Minneapolis, whose topic was "Some Further Observations on Tuberculous Tracheobronchitis."

* * *

Dr. H. Paul Johnson of Harmony has gone to New York where he has accepted a fellowship in ophthalmology at Columbia University. Dr. Johnson, who received his degree in medicine at the University of Minnesota, has been practicing in Harmony since December, 1932.

* * *

Dr. Eleanore Iverson of Minneapolis, formerly of Moorhead, has joined the medical staff of the Fergus Falls State Hospital. Dr. Iverson, a graduate of the University of Minnesota in 1935, is on the Women's Service. Her husband is a physician in the armed forces.

* * *

Establishment of a Sister Kenny Clinic for the treatment of poliomyelitis in The Public Health Center in Minneapolis, has been approved by the board of public welfare. Plans are being considered for the construction of two stories to the present clinic building to carry on the work.

Dr. A. C. Broders is the newly elected president of the Mayo Foundation chapter of Sigma Xi. He succeeds Dr. E. V. Allen.

Other officers named at the eighteenth annual dinner meeting, June 18, are Dr. R. K. Ghormley, vice president; and Dr. H. E. Essex, secretary-treasurer.

* * *

Dr. James D. Trask, associate professor of pediatrics at the Yale Medical School, died in Chicago in May from peritonitis. Dr. Trask was nationally known for his investigations in the field of infantile paralysis and with his colleague, Dr. John R. Paul, was awarded the John Phillips Memorial Medal of the American College of Physicians at Saint Paul in April.

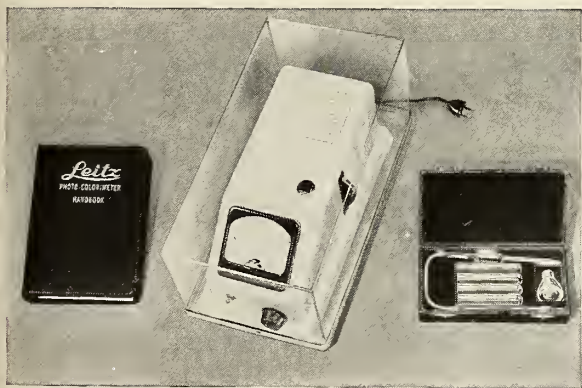
* * *

A Rochester father and son received high degrees from Northwestern University at Evanston, Illinois, at the graduation convocation last month.

Dr. Donald C. Balfour, Sr., director of the Mayo Foundation, was given the honorary degree of doctor of science, *honoris causa*. His son, Dr. Donald C. Balfour Jr., received the degree of bachelor of medicine.

* * *

The University of Minnesota Medical School and its various branches awarded 363 degrees at the June commencement exercises. Previously, during the college year, it had presented 158 degrees, thus making a grand total of 521. These figures do not include graduate degrees. Among the various colleges within the Uni-



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versity, it ranks third in the number of degrees awarded.

* * *

The Human Serum Laboratory at the University of Minnesota is anxious to contact persons over eighteen years of age who have had measles or scarlet fever within the last six months. Their blood is wanted for immunization purposes. Such persons are asked to communicate with the Serum Laboratory for further information.

* * *

On the program for the twentieth annual session of the Pacific Northwest Medical Association meeting held in Portland, Oregon, June 17-20 was Dr. Arlie R. Barnes of Rochester, who spoke on "Pulmonary Embolism; Changing Concepts of Coronary Artery Disease and Electrocardiographic Abnormalities in Various Types of Heart Disease."

* * *

Dr. Mario Fischer, Duluth city health officer, has been appointed medical director of St. Louis County. The appointment was made by the St. Louis County welfare board.

Dr. Fischer will serve in a part-time capacity, continuing his duties as city health officer under an arrangement with the city council.

* * *

Dr. E. H. Lutz, who has been on the staff of the Willmar State Hospital for the past five years, resigned his position, effective July 2, to go to Salem, Oregon, where he will become a member of the staff of the Oregon State Hospital.

Accompanying him to Salem were his wife and daughter, Donna Mae.

* * *

Dr. P. S. Hench of Rochester was awarded a distinguished honor by the Heberden Society of London, which presented him with the Heberden medal for 1942. This is the first time the award has been made outside of Great Britain since the society's founding in 1936.

The award, given annually, is made "in recognition of outstanding contribution to the knowledge and progress in rheumatic diseases."

* * *

Dr. Robert Alway and Dr. Sophia Chamberlin were married in Saint Paul, May 21. They are making their home in Minneapolis, where Dr. Alway is a resident in pediatrics at the General Hospital, and his wife is a fellow in pediatrics at the University Hospitals.

Dr. Alway is a graduate of the University of Minnesota Medical School, and Mrs. Alway, of the Yale School of Medicine.

* * *

The largest number of medical courses ever given at the University of Minnesota Center for Continuation—36—were held there during the 1941-42 college year just completed. A total of 1,527 persons registered for these 36 courses.

When the Center opened in 1937, only six medical courses were given during the half year from January

June. Registrations totaled 152. Ten courses, with registrations totaling 349, were held there during the year 1937-38. The number of courses offered and the number of persons registered have shown a steady increase since then.

* * *

Dr. Thomas H. Dickson of Saint Paul, medical director of the Minnesota Mutual Insurance Company, was named chairman of the American life medical session for the ensuing year, when the organization held its convention at Colorado Springs, Colorado, last month.

Dr. Dickson who served as vice chairman until last April when he assumed the chairmanship following the death of Dr. W. F. Blackford, presided at the meeting.

* * *

Dr. Sidney J. Weisman of Minneapolis, son of Major and Mrs. Samuel A. Weisman, married Miss Marjorie Falk of Duluth June 10 in Duluth at the home of the bride's parents.

Dr. Robert Rogers of Minneapolis was best man. The couple will make their home in Minneapolis, where Dr. Weisman has taken over the practice of his father, who is serving with the United States General Hospital Unit No. 26 at Fort Sill, Oklahoma.

* * *

A bronze medal for "excellence of presentation" of their exhibit at the recent meeting of the American Medical Association in Atlantic City was awarded Drs. M. Randall, M. C. Piper, L. A. Brunsting and M. B. Dockerty of Rochester for their studies on cancer of the ovary.

Dr. H. S. Diehl, dean of medical sciences at the University of Minnesota, was chairman of the Committee on Awards for the scientific exhibit.

* * *

Facilities of the division of sanitation in the Minnesota Department of Health are being utilized this summer for an intensive course in public health engineering offered by the University of Minnesota Department of Preventive Medicine and Public Health.

The courses, limited to graduates in engineering or persons who have had suitable experience in the field of environmental sanitation, consist of lectures, conferences, laboratory exercises and field demonstrations.

* * *

When the Minnesota Society of Neurology and Psychiatry met in Rochester, May 23, a surgical clinic was conducted by Drs. A. W. Adson, J. G. Love and G. S. Baker.

Speakers at the medical session which followed the clinic were Drs. J. R. Brown, C. L. Yeager, J. R. Miller, J. W. Kernohan, P. I. Hoagland and L. M. Eaton, all of Rochester.

Dr. M. B. Dockerty spoke on archery at a luncheon at the Mayo Foundation House.

* * *

Dr. Judson Leeman, who received his medical degree from the University of Minnesota in 1940, has accepted a post as assistant rector of an Episcopal church in Port Chester, New York. Trained in both medicine

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GYNECOLOGY—Two Weeks Intensive Course will be offered starting October 5. One Month Personal Course starting August 3. Clinical and Diagnostic Courses every week.

OBSTETRICS—Two Weeks Intensive Course will be offered starting September 21. Three Weeks Course starting August 10. Informal Course every week.

OTOLARYNGOLOGY—Two Weeks Intensive Course will be offered starting September 14. Clinical and Special Courses every week.

OPHTHALMOLOGY—Two Weeks Intensive Course will be offered starting September 28. Five Weeks Course in Refraction Methods starting October 19. Informal Course every week.

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and the ministry, Rev. Leeman was graduated from the General Theological Seminary in 1935 and then entered the University of Minnesota Medical School. For the past year he has served as resident physician of St. Luke's hospital in New York.

After a year as assistant rector of St. Peter's church in Port Chester, Rev. Leeman plans to go to the Orient as a medical missionary.

* * *

Married in Hibbing, June 6, were Miss Mary Katharine Bowen, daughter of Dr. and Mrs. R. L. Bowen of Hibbing, and Dr. A. Carlyle Tingdale, son of Dr. and Mrs. A. C. Tingdale, Sr., of Minneapolis.

Dr. and Mrs. Tingdale are at home in Hibbing where Dr. Tingdale is a member of the Mesaba Clinic staff. He is a graduate of the University of Minnesota School of Medicine.

Members of the bridal party included Dr. Harold Miller of Minneapolis, Dr. L. W. Johnsrud and Dr. Edward Zeman of Hibbing.

* * *

Two annual meetings of county Public Health Nursing Committees were addressed last month by Dr. W. A. O'Brien, director of postgraduate medical education at the University of Minnesota. On June 18 he spoke before the Pine County group at Pine City, and on June 23 before the Watonwan County committee at St. James.

Dr. O'Brien also was among the speakers at the special training course in building operation and maintenance held on the University of Minnesota campus June 15-19, for school custodians and engineers. His subjects were "First Aid in the Schools" and "The School Health Program."

* * *

Dr. Lawrence R. Boies of Minneapolis, director of the division of otolaryngology at the University of Minnesota Medical School, will address the meeting of the Medical Association of Montana in Missoula, July 8. His subject will be "Symptom of Headache."

At the meeting of the Montana Academy of Ophthalmology and Otolaryngology in Missoula the same week Dr. Boies will present two papers: "Problem of Hearing Impairment" and "Acute Frontal Sinusitis."

Dr. Boies also spoke at the recent annual meeting of the North Dakota Academy of Ophthalmology and Otolaryngology in Jamestown, May 19, on "The Problem of Deafness."

* * *

Under the accelerated program at the University of Minnesota Medical School, the "fall-quarter" freshman medical class began its work June 16 instead of September 28. All other medical students are continuing their studies throughout the summer.

The freshman class has been increased to its absolute maximum of 125, the highest number for which there is adequate facilities.

The accelerated program and the larger class enrollment is placing the heaviest teaching burden of all time on the medical school faculty. Due to the wa-

the faculty has lost many of its members, 85 of them having gone into active service with the army or navy, of June 1.

* * *

The Navy department at Washington has ordered the Medical Specialist Unit No. 56, formed at the Mayo Clinic in Rochester with Dr. Waltman Walters as organizer, to duty.

The unit, which was to leave about July 1, is the second of its kind to be called to duty from the Mayo Clinic. Its members are:

Commander Walters, surgery; Lieutenant Commander C. H. Watkins, medicine; Lieutenant Commander John D. Camp, radiology; Lieutenant R. W. Cragg, pathology; Lieutenant T. J. Hughes, otolaryngology; Lieutenant L. O. Underdahl, neurology; Lieutenant D. H. Pattison, urology; Lieutenant H. R. Butt, medicine; and Lieutenant M. B. Coventry, orthopedic surgery.

Drs. Walters, Watkins, Cragg and Butt are members of the Mayo Clinic staff, while the others are fellows of the Mayo Foundation.

* * *

In accordance with new army regulations reducing the size of the professional staff of general hospitals, 14 of the 55 medical officers of the United States General Hospital Unit No. 26 have been detached from the unit and transferred from Fort Sill, Oklahoma, to Camp Custer near Battle Creek, Michigan.

They are:

Medical Service: Stanley W. Lundblad, Captain, M.C.; Robert A. Green, First Lieutenant, M.C.; Frank Kiesler, First Lieutenant, M.C.; Rodney F. Sturley, First Lieutenant, M.C.

Surgical Service: Conrad J. Holmberg, Captain, M.C.; Howard Hall, First Lieutenant, M.C.; Richard Reiley, First Lieutenant, M.C.; Frederick B. Mears, First Lieutenant, M.C.

Laboratory Service: Evrel Larson, Captain, M.C.

Radiology Service: Eugene E. Ahern, First Lieutenant, M.C.

Dental Service: Virgil R. Ohlen, First Lieutenant, M.C.

Administrative Officers: Robert M. Barr, Major, M.C., Mess Officer; Albert Hayes, First Lieutenant, M.C., Registrar.

* * *

The importance to nation-wide research of the tuberculosis control demonstration, instituted in Meeker County in May, 1941, has been recognized by the gift of \$1,000 from the National Tuberculosis Association for use in continuing the project.

Announcement of the appropriation was received by Dr. E. A. Meyerding of Saint Paul, executive secretary of the Minnesota Public Health Association. The money is to defray the cost of x-rays and to provide a nurse for follow-up work.

The demonstration, launched by the tuberculosis committee of the Minnesota State Medical Association, of which Dr. J. A. Myers of Minneapolis is chairman, is complete cooperation, not only of Meeker County's

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citizens, but of its physicians who are giving their service to it without charge.

Last month Miss Mary Dempsey, statistician of the National Tuberculosis Association, was in Litchfield to make a first-hand study of the project, which seeks to eliminate tuberculosis through giving tuberculin tests to every resident of the county.

* * *

A total of 434 Minnesota physicians had joined the medical service of the armed forces, as of June 15, according to the records of the Minnesota State Medical Association, and considerable more are expected to answer the call to arms. There are approximately 3,400 registered physicians in the state.

Among physicians who have entered the services of the Medical Corps, United States Army, within the last few weeks are:

Dr. A. B. Rosenfield, Hibbing school physician, who reported for duty June 12 in Omaha. He has the rank of major.

Dr. W. M. Haller of Bemidji, who has been commissioned a captain.

Dr. E. R. Addy of Gilbert, commissioned a first lieutenant.

Dr. Emil Johnson of Minneapolis, deputy coroner, who has been commissioned a first lieutenant. He reported for duty at Camp Carson near Colorado Springs, Colorado.

Dr. C. B. Abbott, Springfield, who has been commissioned a captain.

Dr. L. E. Sjostrom, Storden.

The University of Minnesota Board of Regents last month accepted the following gifts for medical research:

From the Rockefeller Foundation, \$15,900, to cover a three-year study of the mechanism of osmosis under Professor Maurice B. Visscher, head of the department of physiology.

From the Nutrition Foundation, Inc., \$5,000 in support of research on nutrition and resistance to fatigue in normal man to be conducted by Dr. Ancel Keys.

From the National Research Council, \$3,000, for continuation of study of congenital absence of teeth in human beings and its significance as a factor in heredity, under Dr. P. J. Brekhuis of the School of Dentistry and Dr. C. P. Oliver, director of the Dight Institute; also \$500 for study of the pituitary glands of children who have met with sudden and chiefly accidental deaths, under the direction of Dr. A. T. Rasmussen of the Department of Anatomy.

From the National Foundation for Infantile Paralysis, \$1,575, for further training courses in the Sister Kenny technique of poliomyelitis treatment.

The Citizens Aid Society of Minneapolis notified the board that it has voted to continue for three years its \$10,000 annual appropriation in support of the Cancer Institute Research Fund.

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BOOK REVIEWS

Hospital Notes

Miss Martha Stahler has accepted a position as superintendent of the Stevens County Hospital at Morris.

* * *

The Southwestern Minnesota Hospital in Heron Lake, according to Dr. Charles W. Rogers, has undergone an extensive modernization program.

* * *

Open house was held June 7 at the Glencoe Municipal Hospital, recently completed at a cost of approximately \$10,000. There were conducted tours.

Of yellow brick and tile, the building is completely fireproof. The outside wall of the operating room is made of glass blocks, and the room is equipped with explosion-proof devices.

Miss Clara Draxton is superintendent.

* * *

Completion of the new addition to the Swenson Memorial Hospital in Canby was observed May 31 with an open house.

Costing approximately \$52,000, the new fireproof addition and the remodeled hospital give Canby complete hospital facilities for emergency, surgical and medical treatment. It has a thirty-five-bed capacity. Mrs. Clara Draxton is superintendent.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

THE ESSENTIALS OF OCCUPATIONAL DISEASES. Jewett V. Reed, M.D., and A. K. Harcourt, M.D., Indianapolis. 212 pages. Price \$4.50. Springfield, Illinois: Charles C. Thomas, 1941.

As the name of this textbook implies, the subject is necessarily arranged for reference. It is essentially a compilation of notes by the authors. Half of the book is given over to tabulation and discussion of chemical poisons; the remainder to the discussion of lesions and diseases due to occupations. It is well written and should prove valuable to all physicians and especially those devoting their time exclusively to compensation work and industrial medicine.

The rapidly increasing importance of compensable disease and the all too prevalent threats of medico-legal controversy and impending socialization of medicine, makes a textbook of this kind a valuable reference to all physicians and surgeons in practice in the United States.

V. N. PETERSON, M.D.

IMMUNOLOGY. Noble Pierce Sherwood, Ph.D., M.D., F.A.C.P. Professor of Bacteriology, University of Kansas, and Pathologist to the Lawrence Memorial Hospital, Lawrence, Kansas. 2nd edit. 639 pages. Illus. Price, \$6.50. Cloth. St. Louis: C. V. Mosby Co., 1941.

This is the second edition of a very useful book on the expanding and intricate subject of Immunology.

While originally planned and used as a textbook for students it will be found to be a very thorough, although condensed discussion of the whole field of infection, resistance and diagnostic laboratory procedures. A judicious background of the principles of Pathology, Physiology, Biology and Chemistry involved is presented and the analysis of the underlying principles of Immunology is very thorough and understandable. Standard techniques are presented and the reasons for the various steps made manifest.

As a basis for exhaustive study in any allied field the book is very satisfactory and the exhaustive bibliography at the end of each chapter makes the necessary collateral reading readily obtainable.

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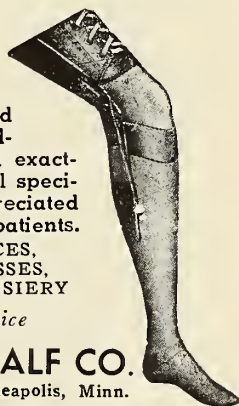
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COMMUNICABLE DISEASE NURSING. Ther. I. Lynch, R.B., Ed.D. Instructor in Education, New York University; formerly Superintendent of Nurses and Director of Instruction, the Willard Park Hospital, New York. 678 pages. Illus. Price \$2.00 cloth. St. Louis: C. V. Mosby Company, 1942.

This book is a presentation of Communicable Disease Nursing as it is taught in schools of nursing, the care of patients both in the hospital and in home. It is especially helpful in its presentation of history of communicable diseases and the part they have played in ancient and modern civilizations, taking one through the progress made in their control. Each disease is discussed and the present methods of diagnosis, treatment and control are presented as well as the details of the nursing care. There are pictures illustrating the gown technique and care of mattresses, linen, dishes, etc., in addition to color plates of manifestations of the disease. There is also a presentation of the methods used by public health nurses in their care of patients in their homes. It is particularly good in presenting the details of nursing care, procedures, and isolation techniques in the care and use of instruments and equipment. The book is very complete and should prove a valuable reference for any nurse working with communicable diseases.

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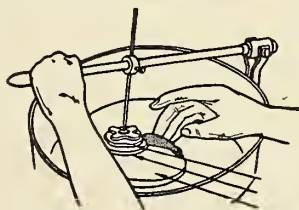
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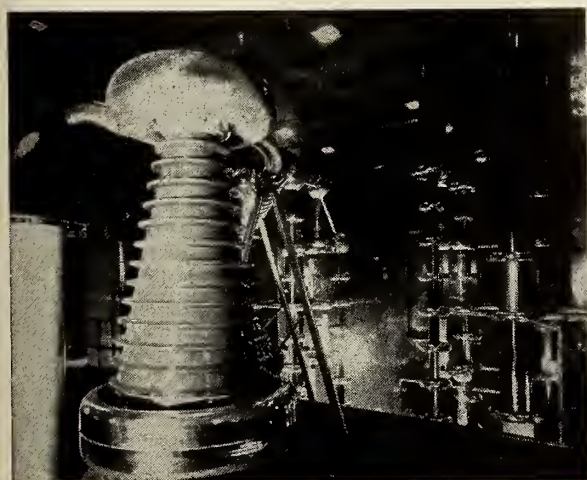
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Timely Hints on Immunization . . .

Diphtheria Toxoids Lederle Smallpox Vaccine Lederle

COOPERATING WITH THE NATIONAL PLAN of having all children over six months of age immunized against diphtheria and smallpox, public health authorities of several states are undertaking intensive drives of their own to secure the protection of a maximum number of children from these infectious scourges of childhood.

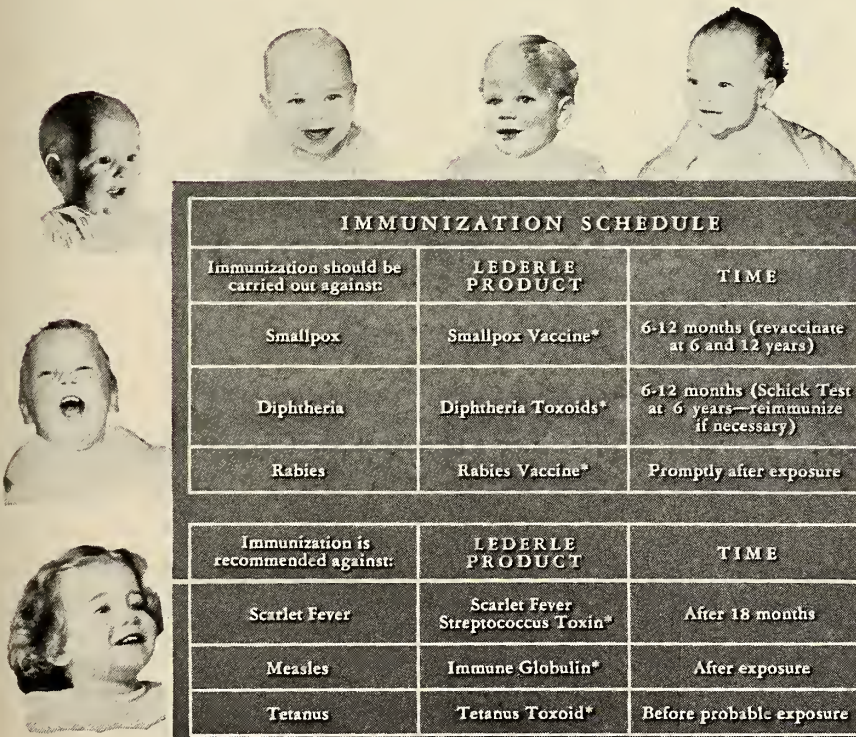
Statistics† show that there was an increase of over 1,200 cases of diphtheria in the country in 1941 over the number reported for 1940. The median for the five preceding years was almost twice the number for 1940. Let us not lose valuable ground gained—the upward trend in the incidence of diphtheria must not continue in 1942!

The method of diphtheria immunization most generally favored at present is 2 doses of alum precipitated toxoid or 3 doses of plain toxoid. In addition, the Department of Health of New York City has adopted the plan of urging that a single supplemental dose of 1 cc. of plain toxoid be given shortly before entering school to all children who have previously been immunized during infancy.

Smallpox incidence in 1941 reached a new low,† and public health authorities and practitioners should be proud of this attainment! However, 1,368

cases of smallpox were reported in 1941. Since this is a preventable disease, it is obvious that the goal has not yet been reached.

†Pub. Health Rep. 57:23,24 (Jan. 2) 1942.



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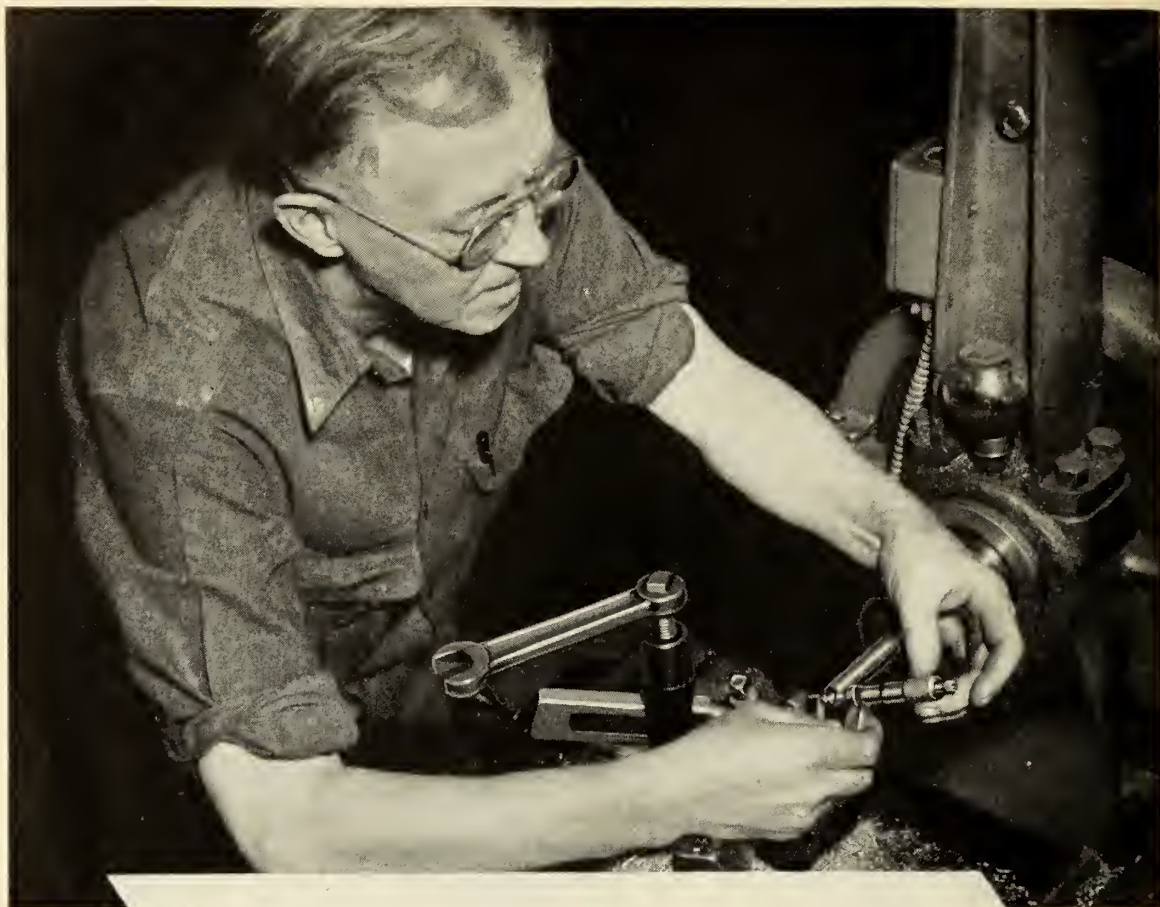
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* *Laryngoscope*, Feb. 1935, Vol. XLV, No. 2, 149-154—*Laryngoscope*, Jan. 1937, Vol. XLVII, No. 1, 58-60 *Proc. Soc. Exp. Biol. and Med.*, 1934, 32, 241—*N. Y. State Journ. Med.*, Vol. 35, 6-1-35, No. 11, 590-592

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MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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SICKNESS AS AN INSURABLE HAZARD

MAC F. CAHAL, J.D.

Executive Secretary, The American College of Radiology
Chicago, Illinois

BRUCE BARTON is author of the statement that the present era is one of organized minorities, each working against the other. Now, that may be a deplorable state of affairs, but from certain viewpoints at least it is more or less true; and if it is true, the meaning for medicine is clear. Medicine too must maintain a strong organization if it is to be properly represented in the kaleidoscopic changes our civilization is presently undergoing.

I am an exponent of the premise that the doctor should occupy a more active place in the civic life of the community that is usually the case today. Under the democratic process there is only one way he can effectively do this, and that is through a strong organization that will make his voice an articulate influence in the political, social and economic developments of the community. It is my personal opinion that a full time executive is essential to the successful accomplishment of the aims of any organization—medical or otherwise. Consequently, I think that the very first step for any medical society contemplating a program in medical economics as ambitious as the one you are contemplating should be to employ a full time executive with the proper qualifications to correlate the activities of the organization.

It is only natural that the tide of social processes resulting from the industrialization and urbanization of our population should reach the medical profession and exert some effect upon the individuals engaged in medical practice for a livelihood. This new development began to be felt by doctors only within the last fifteen or

twenty years, and only lately has medical organization come to mean anything more than a scientific body. Today the county medical society is beginning to perform functions for the local medical practitioners very similar to the functions which the chamber of commerce performs for the business and commercial life of the community. When I began my work with organized medicine ten years ago as the executive secretary of a county medical society there were only a half dozen such positions in the country. Today there must be near a hundred county and state societies which have realized that a full time executive is necessary if their organization is to be more than a monthly study club and if they are to occupy their rightful place of influence in the community.

I do not for a moment recommend that a medical society assume the character of a trade organization. I hope it will be possible for the medical profession to adjust itself to the increasingly exigent demands of society without divesting the doctor of his priestly robes. As a matter of fact, the real reason for organized effort by medical men is to retain medicine as an art and to maintain the doctor in his position close to the priesthood from whence he sprang.

The problems confronting medicine come from so many sources and manifest themselves in so many ways that it is sometimes difficult to decide just which is the best course to pursue. One of these problems is manifested in the recurring illustrations of the fact that there is a sustained attempt upon the part of professional uplifters and social zealots to institute a system of medical practice in this country that is alien to the traditional principles of Americanism. In the face of this increasing threat, organized medicine has in the

Address presented before the Ramsey County Medical Society, February 23, 1942.

last few years undertaken definite programs to meet the real or fancied need of a plan that would permit persons of low income to budget the costs of illness in a system of prepayment. Whether your local society shall embark upon a similar program is a question I presume you will be called upon to answer during the present year.

Whether or not there is an actual need for such a plan is a question open to debate. But one thing is clear: the socialization of medicine is no longer a question for academic discussion; all indications point to the fact that some kind of federalized program to remove the economic burden of illness from the individual will be enacted in the near future.

The enactment of the Social Security Act set the stage for the entry of compulsory health insurance advocates into the highest councils of our land. Since that time we have heard their arguments repeated again and again—in the President's Interdepartmental Committee on Economic Security, in the National Health Conference, in hearings on the Wagner National Health Bill, in the Capper-Epstein Bills, and in the prosecution of the American Medical Association under the Sherman Anti-Trust Law for having opposed the irregular expenditure of some \$40,000 by the Home Owners Loan Corporation to finance contract practice by a corporation in the District of Columbia. Almost daily during the past few months the press has carried dispatches from Washington indicating that the social welfare crowd in the government are going to demand an amendment to the Social Security Act providing compulsory health insurance, under the theory that an additional payroll tax will provide a check against inflation. We should not be unmindful that the cloak of "national defense" may be used to usher in a radical innovation during the present emergency that could not otherwise be accomplished.

In the face of these developments we may ask whether a system of sickness insurance is needed in this country to make available adequate health service. We may point out that evidence is completely lacking that any considerable portion of our people have ever been denied needed medical care. We may ask for evidence that sickness insurance has improved the health of the people in the twenty-five countries now having compulsory systems, or that it would do so in this country. When the advocates of compulsory sickness

insurance point to the high percentage of men rejected for physical defects under the Selective Service System as evidence that our people have inadequate medical care, we can counter with the fact that analysis of those figures reveals that not over 10 per cent of those rejected had physical defects which are subject to medical correction, and that the ignorance or indifference of the individual was usually responsible for their not having received treatment.

The fact is, of course, that what we are witnessing is an attempt to relieve the body politic of a gangrenous appendix by the injection of warmed sweet oil in the ear. If any problem exists, it is not because medical care is unavailable but because a portion of our people do not have sufficient money with which to pay for it. The social workers have put the cart before the horse. One of their most voluble fellow travelers has authored the statement that "the dominant motif in the establishment of every system of health insurance is the relief of poverty, not the preservation of public health" (I. M. Rubinow, *Annals*, Nov., 1933).

Payment for medical services usually takes between 4 and 5 per cent of the average family income. Of the amount so paid, the physician receives about one-third, or between 1 and 2 per cent. Manifestly, 4 per cent of an income of less than \$1,000 a year per family is not sufficient to pay for the medical services that may be needed in such emergencies as occasionally occur to nearly every such family. Neither can the percentages expended for food, clothing, shelter and education from such an income be sufficient during an average year to meet even modest health requirements. Such essentials can be provided only by adequate incomes or by some form of charity. Mere application of the insurance principle will not make available to the poor services which they cannot afford to purchase.

According to the most authoritative study of income ever made in the United States, about 13 per cent of the nonfarmer families in the prosperous year of 1929 had incomes of less than \$1,000 while the percentage of farm families below this sum was 55 per cent (Brookings Institution). Fifty-three per cent of the nonfarmers and 82 per cent of the farmers received less than \$2,000.

It would be idle to deny that about one-third of the population in this country cannot translate

into an effective demand their need and desire for such conditions of living as are essential to good health or pay the cost of the best medical service when they become sick. But it is likewise true that all those who need medical care do not desire it. There may be more than one road to the same goal, and it would seem that the logical road to better medical care is increased income and not insurance.

But the proponents of sickness insurance argue that the real economic problem of sickness is in the uneven burden it casts upon individual families by reason of its unpredictability. By spreading the costs over a large group, it is said, the burden can be equalized and those who do not need medical care will help to pay the costs of those who do. Every man in the community carries fire insurance on his house and when one man's house burns down his loss is made up by payments that have been made by a large group over a long period of time. But here we encounter a fundamental difficulty in putting the theory of insurance into practical application to relieve the economic burdens of sickness. Either a house burns down or it doesn't—but if I say I have a pain in my belly every doctor in the city of Saint Paul can't prove that I haven't.

A fundamental characteristic of an insurable hazard is that the frequency of the happening of the event, which is the subject of the insurance, should be subject to prediction within reasonable limits of error. A necessary corollary is that the happening of the event must not be subject to the control of the insured individual, or that there must be a strong incentive or normal desire on the part of the insured individual to avoid the happening of the event which is the subject of the insurance. It is equally necessary that the insured event shall be susceptible of precise and easily understood definition. The trouble with sickness insurance is that the happening of the event is almost solely subject to the control of the insured. And once medical service has been sought with respect to a condition, the volume of service becomes largely subject to the control of the physician. Because of these two facts there are some qualified experts in the field of insurance who insist that sickness is simply not an insurable risk. They say no insurance plan will work when the control of the expense is in the hands of someone other than the carrier who will pay the bill, and when there is no precise way of

determining when the event has or has not occurred.

Now, I have discussed some of the developments that have impelled the medical profession to consider embarking upon medical service plans in the hope that their control and management by organized medicine would obviate the evil effects of compulsion and political control in governmental plans. I have mentioned certain fundamental difficulties that are inherent in any type of prepayment for medical care. Whether or not organized medicine can find a solution to these difficulties is a question I am not prepared to answer. Neither am I prepared to say that voluntary plans under medical control will forestall the adoption of compulsory health insurance under the control of the government. The answer may be "yes" to both; but here are certain truths which should give us caution. In the first place, there is almost a complete lack of reliable experience upon which to base the actuarial features of a plan. In the second place, we should realize that voluntary sickness insurance plans abroad have not visibly delayed the adoption of compulsory plans but rather have been the forerunners of compulsory plans.

This being true, it does not follow that organized medicine is making a mistake in experimenting with voluntary plans. Even if the Social Security Act is amended in the next few years to provide for compulsory wage deductions on employes and compulsory taxes on employers to pay for a federal system of sickness insurance, these *voluntary* plans may very well set the pattern to be followed. All of the sickness insurance plans in European nations were built upon existing plans that had been operating for several years on a voluntary basis.

Assuming we have reached the conclusion that a nonprofit medical insurance plan, inaugurated, controlled, and managed by the local medical organization, is a wise and sound adventure, how should we begin? The first thing we will want to know, assuming enabling legislation has been enacted and the stage is set to begin, is how much it is going to cost. This is the first, and also the most difficult, question we must consider.

Several studies of the average expenditures for medical care have been made within the past ten years. The smallness of the data in the respective studies may have produced some unreliable results, but the consistency of these results is

significant. From such data as is available, it appears that the average per capita expenditure for physician's services is less than \$10 per year, the average increasing substantially with increase in income level, and to a lesser degree with increase in size of community. While the premium for any plan of comprehensive medical service would properly be in excess of the present average expenditure, it is probable that if the difference is too great, the plan would be very difficult to sell and the tendency towards adverse selection would be seriously increased.

But these figures are practically meaningless when we come to establish a premium for medical insurance, for the simple reason that people do not request and pay for all the medical service they would demand if it cost them nothing. To estimate the cost of care that may be actually demanded in a prepayment plan we must turn to studies of the actual need, and we must bear in mind that when the financial deterrent is removed more service may be demanded than is actually needed.

When we come to consider the probable demands for medical services under an insurance plan we enter a sea of conjecture, and the limited experiences already recorded by existing plans do not provide figures that would be accepted as conclusively reliable by those people who know most about this subject, actuarial experts in insurance.

Probably the most reliable study of the costs of adequate medical care was one made by Bradbury, based upon a standard table of sickness rates developed by Lee and Jones from a comprehensive review of available sickness statistics. His study revealed that, if every illness were properly treated, with no allowance for malingering, it would cost \$37.85 to provide adequate medical care for the average person per year, on the basis of present "Minimum" fees. Other studies have produced lower figures, but of the several made, none has indicated an annual cost below \$20.00 or \$25.00.

Thus, it is obvious that a conservative estimate of the cost of medical care under an insured plan will be greater than the amount that the average person is now paying for medical care. At the same time, it does not appear probable that the average person would be willing to pay an annual premium that would give the physician adequate remuneration for what is termed "ade-

quate" medical care, that is, proper care for every case of illness.

The true cost of medical care under a prepayment plan will probably fall somewhere between the amount people now pay for medical services and the figure deduced by Bradbury as the cost for "adequate" medical care based upon the incidence of illness. In my opinion, the soundest approach to the economic problems of sickness, and the one most socially desirable, would be the adoption of a plan that would insure the family of low income against the catastrophic illnesses; not the minor condition that requires a couple visits to the doctor's office and an expenditure of \$5 or \$10. What the wage earner really needs protection against is the insurmountable burden which confronts him when he incurs a charge for medical services that may be 10 or 20 per cent of his annual income. The social workers tell us we should provide for prophylaxis and prevention in any medical service system—but the problems of prevention and insurance are poles apart and no single plan will provide an answer to both.

The experience in some of the medical service plans established in the past few years proves rather conclusively that the type of insurance the wage earner really wants is one that will protect him when he is faced by a really large expense, and that he is only slightly interested in a plan that pays all his sickness bills, small and large alike. This has particularly been borne out in Michigan. There the state medical society has offered two types of coverage, one for complete medical care at a monthly premium of \$2.00 for an individual, and another for surgery and maternity service at a monthly premium of \$0.50. They have approximately 200,000 enrolled in the surgical plan, but only about 6,000 in the plan for complete medical care.

One of the plans in New York², the Medical Expense Fund, Inc., has a deductible feature which requires that the subscriber pay \$10.00 (or less according to his income) towards his bill before the benefits become applicable. This is intended to eliminate the small charges that increase the cost of insurance protection and at the same time provide protection for the serious illness. It is like the \$50.00 deductible collision insurance you carry on your car.

The inclusion of a deductible feature is logically sound and consistent with good insurance

practice; but it fails to answer one of the avowed purposes of sickness insurance, as advocated by the sociologists. They ask for a plan that will remove the financial deterrent and thus encourage a patient to consult his doctor early before an incipient disease has become acute.

The New York plan contains another ingenious feature; premiums are determined according to the subscriber's income—the traditional sliding scale is applied to insurance. The plan is not undergoing a rapid growth, even though the premium for the lowest income group is only \$9.00 per year.

The lack of demand for these complete medical care plans is rather eloquent proof of a fact I referred to earlier in this discussion. There is considerable room for doubt that the public really desires a plan that will permit prepaid budgeting of sickness expenses, notwithstanding the claims of the social welfare crowd. Wisconsin and the District of Columbia have both abandoned plans after it was demonstrated the enrollment would not be sufficiently large to justify continuation. After three years, the California plan has only about 30,000 subscribers out of a population of 7 million. Thus, it appears that these plans have to be sold if they are to fulfill their purpose and they are not likely to succeed if they are merely offered to the public without any of the accompanying techniques of salesmanship.

All these plans have certain basic characteristics in common:

1. They are confined to group subscribers; individual subscription adds to administrative expense and leads to adverse selection.
2. They are limited to subscribers within certain maximum income limits, usually 2 or 3 thousand dollars annually.
3. Premium rates vary from \$1.00 to \$3.00 per month, depending upon benefits included, with about a 75 per cent increase for couples and smaller increases for each child.
4. Benefits include all services, including laboratory procedures, roentgen diagnosis, and consultation, for the medical plans; the surgical plans are confined to "cutting operations" and maternity service, but include roentgen diagnosis and the examination of pathological tissues.
5. Payment to physicians is made on a fee basis or a unit basis. The difference is more appar-

ent than real, because in all, the physician is the real insurer. Earned premiums are regularly prorated according to the number of units or total fees turned in. The unit in California corresponds to the \$2.00 fee allowed for an office call in Michigan. The value of the unit in California has consistently amounted to about \$1.35. The guarantor of the service is not the corporation, but the physician.

Now, that is about all I know about medical service plans, and as Lady Godiva said when she reached the end of her ride, I am rapidly nearing my close. I should like to have time to tell you about another plan for the payment of sickness bills, but there isn't time. The plan I would describe is one providing for postpayment instead of prepayment. I have said that the public has not taken to these insurance plans as readily as some people thought they would—human nature is not such that the average man will pay in advance for a service he is likely to need in the future. But the installment habit is firmly fixed in the average family. It was my pleasure to inaugurate one of the first postpayment plans in the country some years ago, and that plan is still operating successfully. People who cannot pay full fees for service costing a large sum apply to a medical service bureau where a social worker analyzes their pecuniary status and establishes a fee which they can pay in installments over a period of a year.

In closing, I think I should say a word or two about hospital insurance. The adoption of medical insurance plans by state and county medical societies has been stimulated by the successful experience of group hospitalization plans which now have nearly 10 million subscribers throughout the country. These plans have proved of real value. They have helped the patient, they have helped the doctor, and they have helped the hospitals which had to find some new source of revenue when their income from endowments practically ceased during the period of the depression. But group hospitalization has raised some questions of serious implication for the medical profession. Just where does hospital service end and medical service begin? Notwithstanding the fact that the House of Delegates of the American Medical Association has reaffirmed the principle again and again that group hospitalization plans should not include within their benefits the services of physicians, several of the

large plans in existence, including your own, include the services of a radiologist, a clinical pathologist, and anesthesiology as a part of hospital care. Some of them have instituted ward service plans for the low income groups that include complete medical care.

Here we are witnessing a profound departure from the traditional functions of the hospital. There is an unmistakable tendency for hospitals to assume more and more responsibilities in the delivery of medical care and unless the profession is thoroughly alert we may find the hospitals occupying the role of a middleman as a distributing medium for medical care under prepayment plans that include not only hospital accommodations but the services of physicians as well.

Perhaps this is another reason why it is desirable for medical societies to institute medical service plans. After examining all the pros and cons it appears that the disadvantages of such plans are outweighed by the advantages. We cannot expect the system of medical practice in this country to remain in the status quo, when everything else is undergoing change and when it is obvious that the status is going to be less quo for a good many years to come. It would seem, therefore, that the wisest course for Medicine would be to take the lead in directing the course of change and setting the pattern for what is to follow in such a manner that the high quality of medical care in America will be preserved and its unequalled advancement will be continued.

THE ASSOCIATED MEDICAL SERVICE OF TORONTO

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I AM afraid Dr. Sohlberg has given rather too good a build-up for the man with whom he is dealing. I thought I had impressed Dr. Sohlberg with my comparative ignorance, and that I did not pose as an oracle on the subject of health insurance. The more one deals with this problem the more one realizes how little can be comprehended of it in a short time. I will, however, endeavor to answer as many questions as possible after I have introduced the subject, as I feel that this is the best way of telling you what you may desire to know, in so far as it is possible for me to do so in the light of our four and a half years' experience in Ontario.

I have been interested in the development of health insurance, as it is commonly called, for the past ten years. For the past seven years I have been making an intensive study of the problem, and during the past four and a half years have been learning, through actual experience, how different and impractical our theories are in relation to the actual application of the principle of insurance to the provision of medical care for the general public. I think it is fair to say that we are at present, in regard

to his problem, in the same position that life insurance was fifty years ago.

There is little doubt in my mind that we are going to get socialized medicine in North America, whether we like it or not. It has occurred to me that the best way of directing this inevitable system is to get in and lead it along the path which our experience shows us to be of the most benefit to the greatest number of people—the public as well as the profession.

I recently read an address by a man from a large industrial firm, giving a discourse on the question of postwar problems which would confront our system. He was, of course, dealing particularly with industry, in which he made a very strong plea for the continuation of the present individual and independent type of business. It is significant that the same man who made such a stand for the continuance of rugged individualism in business, made the statement that we must find some means of instituting socialized medicine. To me, it seems a bit incongruous that the group of men who have in the past shouldered, to the greatest extent, their responsibilities in regard to the lower income group of the population, should be held up for

socialization, whereas, ordinary business which has not looked after the low income group to the same extent as the medical profession, should be held up as the example for the continuation of rugged individualism.

Public opinion, however, is a peculiar entity and on many occasions these matters are not of our choosing, and in most countries, where health insurance has come into existence, it has come about as the result of demands on the part of the public.

This demand did not become apparent on this continent, until the recent so-called depression. So long as our standard of living was so much better than that in Europe, the individual has been able to carry, reasonably well, the costs in regard to medical care. The sparsity of our population may also have had something to do with the lack of spread of the idea. It is, however, becoming more and more apparent, in Canada at least, that we cannot withstand the tide of change and public demand, of which note is being taken by the governments of both your country and Canada.

Perhaps one of the greatest contributing factors to the development of this public demand has been the change in our general economic system, which has come about since the turn of the present century. I am comparatively a youngster, but I still remember when it was thought disgraceful to make a purchase on time, and if that purchase made on time were a luxury, it was considered almost criminal. That attitude has, however, all changed, particularly since 1918. Now it is considered the very best of business, both from the salesman's and consumer's point of view, to purchase anything desired, whether necessary or luxury, on the installment plan of \$5.00 down and \$5.00 if, and when, they catch you. It is, however, abundantly clear that the system does work. In the Province of Ontario, there is one pleasure car for every five people, and these are the very people to whom we have to supply medical care. It is a well-established fact that it costs a great deal more to purchase an automobile, let alone to operate it, than the amount spent on medical care. Why then do we hear so much about the high cost of medical care?

It appears to me that we, as a profession, have been so busy listening through our stethoscopes, or looking down our microscopes, that we

have not fully appreciated the economic groans of our patients. They do pay their bills, but at what a price! I am convinced that illness is more destructive to human planning than death. If a member of a family dies, then it is all over, and readjustments are made accordingly, but a protracted illness leaves an economic responsibility which makes it very difficult to proceed with family plans.

We, as a profession, have made tremendous strides in our scientific knowledge, particularly since the turn of this century. We have not, however, kept pace with the economic developments which have been going on around us. Hence we find that the profession of medicine, and its subsidiary adjuncts, are coming out on the short end of the economic stick.

Another reason contributing to the growth in public opinion towards socialization of medicine, has been the ever-advancing cost of medical treatment. At the turn of the century an x-ray film was more or less of an oddity, perhaps even a curiosity. Now, a physician without an x-ray film is the oddity. If to this one adds the additional costs of other advances, there has been quite a formidable increase in the costs of treatment.

Perhaps if we, as a profession, will stop looking down our noses at those in our ranks who become interested in the economic aspect of the practice of medicine in a fair and honest way, we may be able to do something to alleviate the distress of our patients. This can, however, only be done if we, as a profession, approach this problem fairly, honestly and without prejudice. If we will further forget the old shibboleth that our profession is one chosen especially by God and the public, to be set on a pedestal, and that the influence of economics cannot come near us, we may be able not only to advance our economic situation, but assist the public in securing the benefits of our knowledge. At the same time we may be able to place our own researches on a self-supporting basis. I, for one, have grown heartily ashamed of the medical profession going to industry and the wealth of the country with hat in hand, begging for funds with which to carry on research, which is so essential for the welfare of the health of our population.

How then are we to approach this problem, keeping in mind that we must at no time allow such circumstances to arise which will in any

way detract from the advances in treatment of our patients from whatever point of view one may approach the problem?

It would seem to me that we can learn something from those who dispense the goods which has raised the habit of smoking from luxurious indulgence to what we frequently hear termed a necessity at the present time. It is a fact that there is more money spent on smoking on the North American continent than there is on the cost of medical care. Why then do we not hear complaints about the high cost of smoking, as is the case in regard to medical services? It would appear to me that it is due to the fact that if a packet of cigarettes is smoked up, most smokers have twenty-five cents which to purchase another packet. If not, they can purchase a smaller lot for ten cents. Or, if perchance they may be broke, they borrow a cigarette from their friends and consumption still goes forward, and we find the financial statements of the tobacco combine consistently showing a good profit. In other words the individual can buy the where-withal to indulge himself in this luxurious habit in small quantities, so that he doesn't miss a quarter here or a dime there, but in the end, as we have seen, it amounts to more than the services which we, as a profession, have to render to these same people. I think there will be no question as to the relative value of the two products or commodities.

Let us consider for a few moments what happens if you or I or one of our patients has the misfortune to walk in front of an automobile which seems to have a more determined destination than the pedestrian. Such an unfortunate individual will have to have, and indeed will demand with no uncertainty, that an ambulance shall be available to take him to a well-equipped hospital, in which he will expect a bed to be available with a trained personnel to see to his every comfort. He will expect to be carted to the x-ray room and have pictures of all his bones and innards taken. If perchance any of them happen to be misplaced or jarred, he will expect a well-trained surgeon to be on the job within a moment's notice to operate on him in an expensively equipped operating room. He will also expect that so long as his life is in danger, or even during his convalescence, that he will be able to have his every need attended by highly trained technicians and professional individuals.

The part of this picture so readily forgotten by both the physician and the patient is the fact that the doctor, the nurse, and the technicians must live not only when an individual becomes injured or is ill, but during the period of time when such individuals maintain their health. Consequently, under our present system, while there is no installment buying of such services, the individual must pay not only for his present period of illness or accident, but he must put up his share of the cost of maintaining such equipment, trained personnel, and professional individuals, as we have cited above. Would it not be much more logical for both the profession and the public to realize that it would be ever so much easier if the individual could pay on a regular budgeted plan for the necessities of such services?

Such is the background and philosophy underlying our four and a half years' application of this principle through the organization known as "Associated Medical Services" with its head office in Toronto, Ontario, which has at the present time, some eight subsidiary branches throughout the southern part of the Province.

During the next few minutes I shall endeavour to give you some of the practical experience leading up to the organization and through the growth of Associated Medical Service, since its inception to the present time.

In 1930 I had the good fortune to be appointed Neuro-pathologist to the Department of Health in the Province of Ontario, and as such, I joined the Civil Service Association of Ontario. I almost immediately learned that that body had under consideration the establishment of a system whereby they might budget against the cost of illness. I learned, however, that they were committing the common mistake of taking what appeared to be the easiest and most obvious solution to their problem. They intended to go out and hire a group of physicians on a salary basis to give them their services.

I entered into their discussions and consideration of their plan. It was not difficult to point out to them the fallacy of their presuming that a limited number of physicians would prove satisfactory to all of their 2,000 members. I was able to convince them that choice of physician is one of the prime requisites for a successful organization, and after some three years in study with their committee, we were able to present at

their annual meeting in 1934 a plan which met with their approval.

This plan, however, presupposed the full co-operation of organized medicine, and I was detailed as a member of both the Toronto Academy of Medicine, and the Civil Service Association, to take the matter to the Academy.

The Academy, after some consideration, decided that the plan was good and that they would be prepared to lend their support, provided the plan could be extended to cover other groups in the city. The Academy further wanted to place the matter before the Ontario Medical Association in regard to the proposals. At the meeting, approval of the Council was given in 1936 to the establishment of voluntary plans, in trial areas through the Province.

On February 23 and 24, 1937, the final approval of Council and Board of Directors of the Ontario Medical Association was secured, and a loan of \$3,800 granted toward the establishment of the plan. In addition to this amount, the Ontario Civil Service Association made a loan of \$1,200, making a total of \$5,000 for organization purposes.

It is to be noted throughout that the medical profession gave us only their approval of the plan and financial assistance was given in the form of a loan. It was felt by the medical profession that they could not afford to risk either their finances or their reputation on a plan which might quite easily prove to be a failure.

Under date of April 9, 1937, a non-profit, non-share Charter was secured from the Provincial Secretary's Department, incorporating our services under the name of "Associated Medical Services, Incorporated."

We opened our offices on June 1, 1937, in space granted to us, rent free, by the Provincial Government at number 11 Queen's Park, Toronto.

I shall now have to turn back a bit to give you an understanding of the basis on which we arrived at what our subscription rate should be.

During the course of our initial study from 1931 to 1936, much ground was covered and a great deal of literature digested, and some of us spent a considerable portion of our holidays visiting plans in operation which might have any conceivable relationship to the one which we proposed to set up.

We felt that the only safe approach to the problem would be to reduce the services required to

an individual basis, and then set over against that, the fee which we proposed to pay for such services.

The first problem was to determine just what services would be required by a person during a year, in which they might have occasion to make use of the service. We reduced the services to the following items: home calls, office calls, consultations, surgery, hospitalization, special nursing, x-ray, laboratory and administration.

The next problem was to determine how much, on the average, of each of these items one individual in a large group might require during any service year. As a result of rather extensive study which has been listed elsewhere, we found somewhat as follows: There would be one home call per person per year required on the average, at a cost of \$3.00 per call. We could expect to have 1.5 office calls per person per year, at a cost of \$2.00 per call, making an additional \$3.00 for the individual. In regard to consultations, it was difficult to find anything of a very definite nature in regard to the number of these, or the cost of them, but on what information we had, we struck a rate of \$4.00 per person per year. Surgery was found to be required by eight persons out of every hundred, for operations of one kind or another. The average cost of such operations in Canada we reckoned to be in the neighborhood of \$50.00 per procedure. That is, we could expect to have to pay out for each individual in the service .08 times \$50.00, or \$4.00 per person.

We found that in regard to hospitalization, by and large, we could expect an average of 1.3 days per person per year, at a cost, as we reckoned then, of \$3.50 per day. This would make a total of \$4.55 in regard to hospitalization for each individual per year.

Our estimate of the cost of nursing was taken prior to the introduction of the three eight-hour periods per day of nursing, and it was felt that one-half day's service per person per year, at a rate of \$5.00 per day, would cover this feature, at a cost of \$2.50 per person per year.

X-ray and laboratory were reckoned at a cost of approximately \$1.00 per person per year.

Administration, it was felt, would incur another \$2.00 per person per year.

If all these costs now be totalled up, it will be found that they come to \$24.05 per person per

year. It will thus be seen that our figure was not a wild guess taken out of the air.

The figures which we have quoted are true in regard to the individual situation. They are not altogether true in regard to the family situation, or where the family unit basis comes in for consideration. In family groups up to four, there is a reducing ratio of service required in inverse proportion to the size of the family. After the average family of four has been reached, the situation reverses, and there is a mounting ratio of service required. The average size of a family in Ontario being 3.9, we were able to strike a reducing rate in the family situation, and so we set a monthly subscription rate of \$2.00 for the first member of the family, \$3.75 for two members of the family, \$5.25 for three members in the family, \$6.50 for four, and a dollar increase for each additional member in the family succeeding the fourth. On this basis, we collected our first subscription as indicated above, on June 1, 1937, and in return for that subscription, promised our subscribers the services as listed previously, namely, home calls, office calls, consultations, surgery, hospitalization, special nursing, x-ray, laboratory and administrative costs.

From the first of June to the 31st of December, 1937, we added a total of 733 subscribers. At the end of December, 1938, we had 4,020 subscribers. At the end of 1939, approximately 10,000, December 31, 1940, 20,000, and at the end of 1941 approximately 30,000, so that at the time of speaking, we have had four and a half years' experience, with a growth as indicated above.

Out of our income, we have paid all of our administrative expenses, salaries, and medical costs. We have been able to repay the loans granted to us by both the Ontario Medical and the Civil Service Association, and have accumulated a reserve of approximately \$98,000 against future and unrepresented claims. In addition to the above, we have assets in the form of equipment totalling approximately \$25,000.

The amount of checks and controls will undoubtedly be a question which you will raise at the end of this period, and I shall therefore not attempt at this time to delineate the numerous problems, and our solutions to them, but shall endeavour to answer such questions as may be of interest to you, as they are raised.

A short discussion in regard to administrative procedures may now be in order. One of the greatest difficulties in any such plan as we have endeavoured to provide, has been the mounting administrative costs, and in many cases the administrative costs have exceeded the cost of providing medical services. After four and a half years' experience, I can well understand how such might become the case, unless the administrators are very diligent, and prepared to make changes when duplication and unnecessary procedures become apparent.

The amount of detailed work necessary in any such plan requires that the methods of mass production be applied, in so far as possible, and that automatic machines be utilized to the full. In fact, the administration of such a plan is indeed the happy and useful hunting ground of all types of office machine equipment, and if used judiciously, can become one of the organization's greatest assets.

Our administrative costs at the outset were obviously high, and to some extent the same is true at the present time. However, three years ago our administrative costs were approximately 24.6 per cent of our total income. Two years ago it was down to 21 per cent, and in 1941, had dropped to 19.5 per cent. Up to the present, during the year 1942, this administrative expense dropped to the neighborhood of 17 per cent. It is to be remembered that in this cost is included cost of acquisition of new subscribers, and the cost of administering the collection of monthly subscriptions, and the payment of monthly accounts to the physicians, both of which procedures are extremely expensive to administer.

The cost of collecting our subscriptions on a monthly basis has, however, been less than 1 per cent. At the beginning of any one month at the present time, we have in the neighborhood of 18,000 subscriptions due us. On the 15th of the month there are less than 300 subscribers still outstanding, and by the end of the month, we seldom have to cancel more than thirty subscribers for nonpayment of their subscription. This fact may be due to our Regulation which states that while any subscription is outstanding the corporation shall not be responsible for any expense incurred during such period. Under these circumstances, the subscriber makes sure that his subscription is in our office on the 1st day of the month in advance.

Much of the success of any such plan will depend upon its careful and considered administration. Although Associated Medical Services is operated on a non-profit basis, and on humanitarian lines, there is no presumption that its dollar will stretch any farther than anyone else's in ordinary business. Therefore, we take particular pains to see that no more than the service which we promised is rendered for the subscription paid. Administration must be just and fair, as well as consistent in each situation which may arise.

Through all this discussion you have undoubtedly been asking yourself the question, "How does the profession like it?" Well, it reminds me a bit of the old childish rhyme, "Pease porridge hot, pease porridge cold . . . some like it hot, some like it cold," and some don't like it at all. I think, however, it is fair to say that out of the 1,800 physicians who are actually participating with us throughout the province, 80 per cent are satisfied. That is, as satisfied as you can get any group of physicians when a radical change of principle is involved. Probably 15 per cent are indifferent. There is a 5 per cent balance who just don't like us at all, and I may say that we in our turn, do not like some of them any better.

A few of those who do not like us are, as a group, high class type of men who feel, and justly so, that they can only limit their practice by charging a heavy fee. In this group are included some of my very best friends. There is, however, another group who are not so high class, and are of not such a good calibre, who expect to receive \$5.00 for every office call, and who seem to feel that nothing short of ten calls for any condition is worthy of their consideration. For these people, we have our own top ceilings and deal with them by indicating that we can get along better by going our own individual ways.

The whole organization is voluntary, and if by chance an applicant names a physician who is not participating, we immediately return his subscription and refuse to accept his application.

In regard to the subscribers, it is undoubtedly true that those with incomes of upwards of \$3,500 do create a considerable amount of difficulty, as compared with those below that bracket. There are, however, a certain number even in the lower income group that feel that because

they have paid their subscription that they should have attendance very frequently, and in quantities far beyond their individual capacity to pay. It is not uncommon however, for a physician to call us up and indicate, or to put a note on his account, that such and such an individual is demanding a lot of his time and service. To a certain extent these individuals may be weeded out before they become subscribers, since the family physician has an opportunity of indicating to us the type of individual, when we write to him asking for his past history. In any case, it is not long until we see from the history card whether or not they are being reasonable with the plan. If we feel that unreasonable demands are being made, we can cancel forthwith, or we can give three months' notice of cancellation, and this is not an uncommon means of handling such a situation. Starting with 20,000 subscribers at the beginning of 1941, and ending with approximately 30,000, we had 92 cancellations, for abuse of medical privileges.

Another question which may be in your mind is, "How long do your people stay with you?" In January of 1942, we made a survey of the first thousand members handed out. This represented some 1,622 subscribers. Out of this number who first became subscribers, we still had with us 78 per cent, who were obviously satisfied, or they would not be with us after four to four and a half years.

Another legitimate question may arise in your minds regarding how frequently we have to make changes in our Regulations. When we started our organization, we admitted frankly that it was on an experimental basis, and both our doctors and subscribers understood this to be true.

Just here I would throw out a word of warning to the profession. It is not to be expected that any plan can be pulled out of a hat and set to work to the satisfaction of all concerned. We might as well realize now as at any time, that however this change is brought about, there is going to be a long period of readjustment on the part of both the profession and the services before it works to the satisfaction of all concerned. Personally, I am of the opinion that nothing short of ten to fifteen years will develop any plan to the place where it is reasonably satisfactory. Nor need we expect at the end of that time that all is going to be honey and clover. The only state of complete stasis of which I know, is to be

found in rigor mortis. It is my opinion that the moment any such plan as our own becomes static, that moment will it have died.

The question is not whether or not we are going to have a period of readjustment and difficulty, but rather, the question seems to be, "How are we going to make that adjustment?" Is it to be under stress and strain; under suspicion on the part of all, or are we going to approach the problem frankly and openly, giving full coöperation to the public and government; recognizing that they too have their rights in the problem, and that we must make adjustments as well as they? If we approach this problem in this manner, there appears to be no reason why this advance cannot be made a happy experience, the same as any advance we make in regard to our professional knowledge.

Now then, Mr. Chairman, I have taken a good deal more time than I had intended when we started. It has indeed been a great pleasure to me to come to your meeting and discuss with you a problem in which I am vitally interested. If by any chance I have thrown out any suggestions which may be helpful to you as a profession, I am more than happy. I shall be very pleased to answer, to the best of my ability, any questions which may be put forward from the floor of the meeting. Once again, my sincerest thanks for paying me the compliment of having me here at your meeting.

Question 1.—Your administration cost was figured at 8 or 9 per cent. I was wondering whether there is other distributions in your original estimate which make up the amount you discussed later (19 per cent) and whether you see a possibility of increasing or decreasing the cost?

Answer.—I should have told you during my discussion that there is a two-month waiting period, during which we are not responsible for any medical services, but during which the subscriber pays the same rate of subscription. This fee is charged to cover the cost of securing application and setting up files. Last year, for instance, we had roughly, ten thousand new subscribers who each paid us, roughly, about \$1.85 for each of two months, or a total of \$37,000, which is in no way related to the subscription rate charged. This will account for the additional administrative expense over and above that set out in my original discussion.

In answer to the question, "How are specialists taken care of in the plan?", I would say that the basis of our service is that of a general practitioner, and if a subscriber wishes to make use of a specialist, for instance, through a pregnancy, we feel that they must bear the additional cost of that specialist. The usual

fee allowed in Ontario by us for the delivery of a child to a general practitioner is \$45.00, including complications. If one of our subscribers chooses to use an obstetrician throughout a pregnancy, she must pay the difference between the \$45.00 and the obstetrician's usual charge.

If a surgeon chooses to charge an extra fee, over and above that allowed by the O.M.A. tariff, he must indicate so to his patient, before he begins the operation so that the individual has an opportunity of deciding whether or not he wishes to pay the additional amount to the surgeon. Generally speaking, there is not any great difficulty in regard to specialists, as the vast majority of them make no extra charge over and above the ordinary O.M.A. tariff of fees.

Question 2.—Do you take in groups, and how do you get subscribers? How do the medical profession keep control?

Answer.—The only group which we have so far recognized, is that of the family group in which application must be made on an individual basis. We will not take part of a family unless the whole family makes application.

We have secured our subscribers mainly through our satisfied customers. Our newspapers have given us a considerable boost from time to time, and, on occasion, welfare organizations, home and school clubs etc., have given us a considerable amount of assistance. On other occasions we have been asked by certain programs dealing with social welfare problems to broadcast over the radio. These are the main ways in which we secure our subscribers.

"How does the profession retain control?" In our Charter it is specifically stated that there must always be a majority of medical men on the Boards throughout the province. In all, there is a majority of at least ten medical men in membership in the Corporation. Our Charter laid down the specific ratio of laymen there must be in relation to medical men who can vote, and the majority is always medical. In this way, the final control rests in the hands of the medical profession.

Question 3.—Is there any limit on the financial status of participants, and how are special fees determined?

Answer.—There is no limit to financial status except that we have learned through experience that persons in the higher income bracket do create some difficulty, and they, therefore, now find it more difficult to get in than other individuals. The physician himself is asked if he knows of any reason why such an applicant should not be accepted as a subscriber. He thus has the right of choosing whether or not an individual shall become a subscriber.

Question 4.—Does an individual name a family physician?

Answer.—He must name a family physician when sending in his application, and he must secure all his

services through that nominated physician, unless special permission is granted to do otherwise, or in cases of emergency.

Question 5.—How are specialist fees set?

Answer.—If a specialist is not satisfied with the O.M.A. tariff of fees, he has the right to indicate before he starts on an operative procedure, to the subscriber that he will charge an extra fee. If the subscriber chooses to pay such extra fee, it is a matter of personal arrangement between the physician and his patient. In the vast majority of surgical cases there is no demand for a fee above the average, and we have not found difficulty in this regard. In regard to obstetrics, if the subscriber chooses to use such a specialist throughout a pregnancy, she can pay the difference just the same as if she chooses to pay the difference and have a private room in a hospital.

Question 6.—In case a policyholder has no physician, or the physician is not participating, has the individual the right to name such a physician?

Answer.—We will not accept such an application naming a physician who does not choose to participate.

Question 7.—Suppose the physician will not abide by the ruling of your board, would you permit him to participate?

Answer.—No. A.M.S. is a voluntary organization, and he has the right to participate or not, as he chooses. If he does not wish to participate and abide by the rulings and decisions of the Corporation, then we cannot accept him as a participating physician, and anyone naming him as a family physician would be told that we could not accept his application.

Question 8.—What per cent of the medical men are in your organization?

Answer.—It varies from center to center. Generally speaking, over 92 per cent of the physicians in those areas where we operate are participating. In the city of Toronto, out of 1,200 physicians practising, we have over 1,100 participating. I am not suggesting that they are all out cheering and waving their hats for us, but they are satisfied in at least 80 per cent of cases.

Question 9.—I heard you refer, Dr. Hannah, to your plan as a coöperative setup. Is this true in the literal sense of the meaning of coöperative?

Answer.—This is not true in the ordinary sense of the coöperative, such as "Farmers' Co-operative" if that is what you mean by "coöperative." It is controlled under a charter, set up under the Companies Act of the Province of Ontario, and is run by a Board of Directors, elected each year at the Annual Meeting.

Question 10.—The point I want to make is, is there anything about your coöperative that would make it impossible for the board to change your methods? Can't

they amend your Constitution at your Annual Meeting?

Answer.—"The Constitution may be amended at the Annual Meeting, but unless the profession is lax in attending such annual meeting, it is not possible for the control to pass out of the hands of the profession. If it is impossible for the medical men to attend, I have, in the past, asked them to give me their proxies. Of course, if the medical men become careless, and do not attend the Annual Meeting, it will be possible for the laymen to bring a group and change the Constitution, and upset the whole show. Our organization is not set up as a true coöperative, in the ordinary sense of the word."

Question 11.—Can a family name a physician who is participating, and then if they wish to change after becoming subscribers, choose a non-participating physician?

Answer.—They may change their physician, if they give us notice in writing. However, they can only change from one participating physician to another participating physician. If they choose a nonparticipating physician, we have to decline to accept their nomination, and cancel their subscription, if they wish to stay with that nonparticipating doctor.

Question 12.—If the cost of medicine and fees were to exceed the cost of office calls, do you make any provision?

Answer.—The only provision we make is an average of fifty cents per day while in hospital for drugs. If the doctor wishes to charge for drugs, at the time of the call, he can do so. We do not, however, pay for any drugs in addition to the office call.

Question 13.—What is the method used in handling a physician who deliberately has the patients come in too often in order to build up his practice?

Answer.—If a doctor shows too much discrepancy from the average cost, he is first asked to come in line, and if he fails to do so, it is indicated to him that we no longer wish to have him as a participating physician. Our statistics keep accurate count of the cost, both to the nominated physician and to specialists required by such a physician. A great deviation from the norm in such a situation calls for serious consideration, even dropping him as a participating physician, and it is on this basis that we handle all such matters.

Question 14.—Can a subscriber name more than one physician when he applies?

Answer.—No. Only one physician can be named for each subscriber, but each member of a family may name a different physician.

Question 15.—When a subscriber puts a doctor's name on his application, does he have to go to that particular physician? What does he do if he wants to

see an eye doctor? Does the physician suggest an eye doctor?

Answer.—That is right, the nominated doctor and the patient choose the specialist.

Question 16.—*How do you handle libel? Are you subject to damage suits?*

Answer.—We are not responsible for the actions of a doctor, or other person, or institution, which may cause damages to the patient. If, however, a person is not satisfied with our decision, he has recourse to the ordinary courts. In our four and a half years, we have not yet had a suit, but we have one pending at the present moment.

Question 17.—*Suppose a doctor is out of town and can't get back, and a nonparticipating doctor is called in, what do you do then?*

Answer.—Of course, in a case of emergency, we don't ask about it, we go ahead and pay the account, but require our subscriber to return to his own doctor at the earliest possible moment.

Question 18.—*Do you find that you reach the low income group with this plan?*

Answer.—We are not reaching the very low income group, although we have 28 per cent of our subscribers with incomes of less than \$1,000 per year. It will only be possible to really reach the low income group when the medical profession fully appreciate their responsibility in regard to this matter, and are prepared to make reductions in their fees, in accordance with the situation covered. That is, they can well afford to take a good deal lower fees, if they are going to be paid for the very low income group, than if the plan only covers those of the higher brackets. Such low income groups will require assistance, perhaps both

from the government and their employers, as well as the coöperation of the profession, before the problem can be really solved. However, I am of the opinion that if the profession goes to work in earnest with such a plan as we have provided, it will be possible for them to reach this low income group.

I am at the present time in the process of tearing our organization limb from limb, and making an analysis. In this analysis I find, for instance, that our subscribers stay in hospital fourteen days for appendectomy. When they are paying the cost themselves, they stay in just a little better than ten days. In obstetrics they stay about fourteen days under our plan, whereas when paying for it themselves, they stay less than eleven days. These and many other factors must be taken into consideration in arriving at our final conclusions.

I do, however, feel that if the profession goes to work in earnest on this proposition, it will be possible to bring the cost down to such a level that employers and employes will find it to their advantage to join such an organization."

Question 19.—*How do you handle night calls?*

Answer.—We allow an additional dollar for calls made at night. The question of mileage is not our responsibility. We do not pay for transportation of the patient to the doctor, or the doctor to the patient.

Question 20.—*In case your organization becomes bankrupt, what would you do, would there be any return of premiums to your subscribers?*

Answer.—If we go insolvent, we are on the same basis as any other company. Our assets would be liquidated, and our debts paid in accordance with the amount of money available, after such liquidation. There would be no return of premiums to any subscriber. Our service is on a month-to-month basis only.

YOU ARE LUCKY TODAY

The last century was a period of unbelievable progress. But in no field was greater progress made than in care of the sick, and in advancing the standards of public health.

A century ago, for instance, anesthesia for surgical operation was unknown—it did not come into use until 1846. And even later, in Civil War days, hospital death rates of 20 per cent and more were not uncommon. Nothing was known of infectious diseases, the germ theory had not been heard of, and sterilization of instruments and dressings was never practiced. Not until 1868 was a start made in curbing and controlling infection.

Startling is the fact that 99 out of 100 American hospitals were founded within living memory. Fifty years ago hospitals were generally confined to large cities—in small towns and rural areas, operations took place at home, by the light of kerosene lamps and an open vessel steaming on a stove as sterilizer. The medical men were not content. It was due to their initiative that hospitals in smaller centers were gradually established.

The whole history of medicine is a history of individual effort—of tireless private initiative—of unselfish men fighting the endless war against disease and public ignorance. And all of us lead happier, fuller lives because of it.

A STUDY OF OSTEOPOROSIS BY MEANS OF CONTROLLED X-RAYS OF THE BONES

Part II.

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IN PREVIOUS articles,^{1, 2} one of us (E. L. G.) has called attention to a group of patients with gastrointestinal complaints who had a definite osteoporosis of the bones (hand and wrist) when compared with normal subjects, and has outlined in detail the technique employed in determining the presence and severity of osteoporosis.

The present study concerns itself with a statistical analysis of two hundred and seven consecutive cases which were x-rayed in the manner previously referred to. In this analysis the X^2 method is used, X^2 being a measure of the total discrepancy between the observed frequencies and those calculated on the assumption that there is no association between the two variables. Therefore, the larger X^2 is, the greater the evidence of correlation. P is the probability that a value as large as the given X^2 would arise through sampling errors alone. When P is less than .05 (5 per cent) this is considered adequate evidence of the existence of real correlation between the two variables. The nature of the correlation (whether positive or negative) can be determined by inspection of the table.

For statistical purposes a slight change has been made in grading the osteoporosis from that described in the paper detailing the technique used in this work. Instead of dividing the series into those showing no osteoporosis, Grade I, Grade II, Grade III and Grade IV osteoporosis, we shall here simply refer to those showing no osteoporosis, slight osteoporosis, and definite osteoporosis. Slight osteoporosis corresponds to Grade I, while definite osteoporosis includes Grades II and III. There are no cases with Grade IV osteoporosis in this series.

Originally, the cases were divided according to the sex of the patient, there being fifty-eight males and one hundred and forty-nine females. Although the females showed a greater tendency toward increasing osteoporosis with advancing age than the males, the difference was found not to be significant statistically. It was therefore decided to study the group as a whole without

TABLE I
INCIDENCE OF OSTEOPOROSIS IN RELATION TO AGE

AGE	OSTEOPOROSIS			TOTAL
	NONE	SLIGHT	DEFINITE	
10-49	O 48	35	39	122
	C 38.9	37.7	45.4	
50 & over	O 18	29	38	85
	C 27.1	26.3	31.6	
TOTAL	66	64	77	207

$$X^2 = 7.85 \quad P = .02$$

reference to sex except in the case of those factors which concerned one sex only.

In examining the tables, it will be noted that both the figures showing the observed incidence of osteoporosis and those showing the calculated incidence are included, the observed values being in heavy print opposite the letter O, and the calculated values in lighter print opposite the letter C. Values for X^2 and P are shown for each factor studied except in the case of occupation where the number of cases in one group is not large enough for this.

Table I shows the incidence of osteoporosis in the group as a whole, as well as a gross division according to age. There are sixty-six cases showing no osteoporosis, sixty-four slight osteoporosis, and seventy-seven definite osteoporosis. Of the normal group, only eighteen are over fifty years of age, showing a definitely decreasing presence of normal bones with age. This is borne out by the values for X^2 and P. However, the fairly large number of cases of definite osteoporosis (39) in the lower age group indicates that age is not the only factor. The group is not large enough to make a finer division into decades.

Table II shows the incidence of osteoporosis in relation to occupation. The types of occupations encountered in this group are similar to those

OSTEOPOROSIS—YLVISAKER AND GARDNER

TABLE II

INCIDENCE OF OSTEOPOROSIS IN RELATION TO OCCUPATION

OCCUPATION	OSTEOPOROSIS			TOTAL
	NONE	SLIGHT	DEFINITE	
Manual labor	7	4	5	16
Housewives	24	25	44	93
Miscellaneous	35	35	28	98
TOTAL	66	64	77	207

TABLE III

FACTORS SHOWING NO RELATIONSHIP TO OSTEOPOROSIS

CIVIL STATE					PREGNANCIES				
CIVIL STATE	OSTEOPOROSIS			TOTAL	PREG- NANCIES	OSTEOPOROSIS			TOTAL
	NONE	SL'T	DEF.			NONE	SL'T	DEF.	
Single	20	23	19	62	None	23	29	27	79
	18.7	19.7	23.6			22.3	24.4	32.3	
Married	41	41	58	140	One or more	19	17	34	70
	42.3	44.3	53.4			19.7	21.6	28.7	
TOTAL	61	64	77	202	TOTAL	42	46	61	149
$X^2=2.23$ $P=.33$					$X^2=3.74$ $P=.135$				

GASTRIC ACIDITY

GASTRIC ACIDITY	OSTEOPOROSIS NONE	SL'T	DEF.	TOTAL
Absent to low free HCl	7	11	10	28
	8.9	11.6	7.5	
Normal to high HCl	13	15	7	35
	11.1	14.4	9.5	
TOTAL	20	26	17	63
	$X^2=2.26$			$P=.368$

seen in any private office practice in a large urban community. It is essentially a "white collar" group. The miscellaneous column in this table can be considered the "white collar" workers. It was thought best to keep the housewives in a separate column. This group shows an increased incidence of osteoporosis. However, the small number of manual laborers makes statistical analysis impossible on the basis of occupation. Clinically, we have definitely gained the impression that there is a relatively decreased incidence of osteoporosis among manual laborers; that it is largely a disorder of the so-called "white collar" workers. This is borne out by our experience at the Minneapolis General Hospital, where perhaps the majority of patients are manual laborers of one type or another. Here it has been difficult to find cases for teaching purposes similar to our group showing osteoporosis.

TABLE IV

FACTORS SHOWING DEFINITE RELATIONSHIP TO OSTEOPOROSIS

CALCIUM INTAKE					BOWEL DISTURBANCES				
CALCIUM INTAKE	OSTEOPOROSIS			TOTAL	BOWEL DISTURBANCES	OSTEOPOROSIS			TOTAL
	NONE	SLT	DEF.			NONE	SLT	DEF.	
Adequate	40	33	28	101	None	54	34	30	118
	32.2	31.2	37.6			37.2	36.7	44.1	
Inadequate	26	31	49	106	Intestinal hypermotility	11	30	47	88
	33.8	32.8	30.4			27.6	27.3	32.9	
TOTAL	66	64	77	207	TOTAL	65	64	77	206
$X^2=8.6$ $P=.011$					$X^2=28.81$ $P<.001$				

CONDITION OF TEETH

CONDITION OF TEETH	OSTEOPOROSIS NONE	SL'T	DEF.	TOTAL
Good	35	32	24	91
	29.0	28.1	33.9	
Fair to poor	31	32	53	116
	37.0	35.9	43.1	
TOTAL	66	64	77	207
	$X^2=8.3$			$P=.018$

Table III is a composite table in which are included those factors studied which show no relationship to osteoporosis, namely, civil state, gastric acidity, and, surprisingly, pregnancies. Sixty-two of our patients were single; one hundred and forty married; data in this respect being incomplete in five cases. The low X^2 , and P well above 5 per cent, shows a definite lack of correlation between civil state and osteoporosis. Gastric analyses were done in sixty-three cases. Here again a rather gross division is made, the group being divided between those showing absent to low free hydrochloric acid values and those with normal to high acid. Twenty degrees of acid is used as the dividing line. Many of those cases with low acid values showed acid only after histamine stimulation. No correlation with osteoporosis is seen. In regard to pregnancies, the women in the group are rather evenly divided between those having had no pregnancies (seventy-nine cases) and those having had one or more pregnancies (seventy cases). No correlation between a history of one or more pregnancies and osteoporosis is found. If the pregnancy group were further subdivided according to the number of pregnancies in each case, a correlation appears in those with four or more pregnancies, but the number is not large enough for proper statistical evaluation.

Table IV is again a composite table in which are included those factors studied which show a definite relationship to osteoporosis. In regard to the condition of the teeth, a simple division is made between those with obviously good teeth and

TABLE V

INCIDENCE OF OSTEOPOROSIS
IN RELATION TO CALCIUM INTAKE AND BOWEL FUNCTION

ADEQUATE CALCIUM INTAKE

BOWEL FUNCTION	OSTEOPOROSIS			TOTAL
	NONE	SLIGHT	DEFINITE	
Normal	26 15.3	17 10.0	15 8.3	58 29.6
Intestinal hypermotility	8 12.7	14 13.4	11 15.3	33 41.4
TOTAL	34	31	26	91

INADEQUATE CALCIUM INTAKE

BOWEL FUNCTION	OSTEOPOROSIS			TOTAL
	NONE	SLIGHT	DEFINITE	
Normal	23 18.0	14 10.9	13 10.5	50 39.4
Intestinal hypermotility	4 15.0	19 15.7	34 17.9	57 48.6
TOTAL	27	33	47	107

$$X^2 = 40.5$$

$$P < .001$$

healthy gums with only minor dental repairs, and those with excessive dental repair, several to many teeth missing, partial or complete plates and obviously unhealthy gums. A very definite correlation is found between the condition of the teeth, so defined, and osteoporosis.

The criterion used to determine the adequacy or inadequacy of calcium intake was the history of whether or not the patient had over a long period of time consumed at least two to three glasses of milk and/or a considerable quantity of cheese daily. On this basis, a very definite correlation is seen between calcium intake and osteoporosis.

In studying the relationship between bowel function and osteoporosis, we have divided our cases into those with a history of normal bowel function with no symptoms or signs pointing to disturbed bowel function, and those with evidence of intestinal hypermotility. In the intestinal hypermotility group are included those with a history of chronic diarrhea, spastic constipation and cathartic habit. This is the so-called irritable bowel group. We believe there is adequate evidence to show that an intestinal hypermotility, especially of the small bowel, exists in these cases. Only one case of true constipation, that is, actual delay in the progress of the meal through the intestinal tract, was found in this series. This patient was later shown to have a partial obstruction due to bands of adhesions and is not included in this table. It is seen that a very marked correlation exists between bowel disturbances, as defined, and osteoporosis, P being less than 0.1 per cent.

Table V shows the effect of bowel function

Chart 1

FACTORS SHOWING DEFINITE RELATIONSHIP TO OSTEOPOROSIS

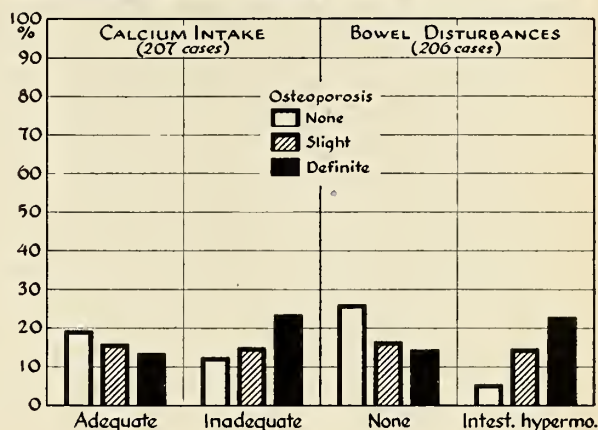
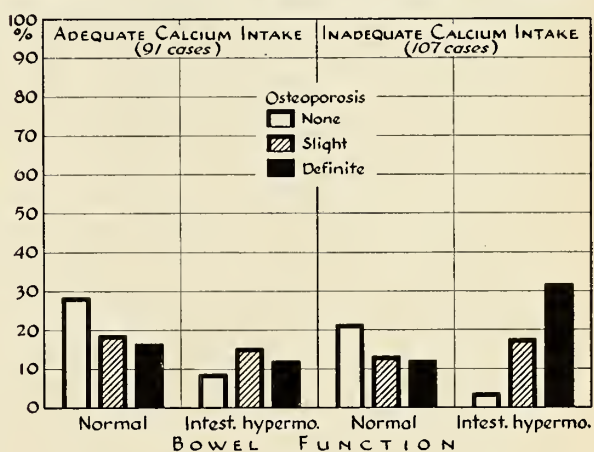


Chart 2

INCIDENCE OF OSTEOPOROSIS
IN RELATION TO CALCIUM INTAKE AND BOWEL FUNCTION



superimposed on that of calcium intake. In other words, the adequate and inadequate calcium intake groups are further broken down into those with normal bowel function and those with intestinal hypermotility. It is readily seen that intestinal hypermotility definitely increases the incidence of osteoporosis in the adequate calcium intake group, whereas normal bowel function decreases the incidence of osteoporosis in the inadequate calcium intake group. The best group (least osteoporosis) is that with adequate calcium intake and normal bowel function; the worst group (most osteoporosis) that with inadequate calcium intake and intestinal hypermotility. This arrangement of our data results in the highest value for X^2 encountered in this study; an extremely strong probability that bowel function when

TABLE VI

INCIDENCE OF OSTEOPOROSIS IN RELATION TO SYMPTOMS

SYMPTOMS	OSTEOPOROSIS			TOTAL
	NONE	SLIGHT	DEFINITE	
Nervousness	23 25.2	27 24.4	29 24.4	79 $\chi^2 = .70$ $P = .6+$
Fatigue	18 23.9	24 23.2	33 27.9	75 $\chi^2 = 3.80$ $P = .135$
Constipation	11 18.2	20 17.6	26 21.2	57 $\chi^2 = 5.88$ $P = .050$
Abdominal pain	20 17.5	23 17.0	12 20.5	55 $\chi^2 = 8.17$ $P = .018$
Muscle pains	19 17.2	19 16.7	16 20.1	54 $\chi^2 = 1.63$ $P = .368$
Joint pains	14 13.1	10 12.7	17 15.2	41 $\chi^2 = 1.05$ $P = .607$
Headache	7 9.2	12 9.0	10 10.8	29 $\chi^2 = 1.64$ $P = .368+$
Gas distress	9 8.6	10 8.4	8 10.0	27 $\chi^2 = .83$ $P = .6+$
Palpitation	9 7.3	6 7.1	8 8.6	23 $\chi^2 = .68$ $P = .6+$

superimposed on calcium intake further affects the incidence of osteoporosis, P again being less than 0.1 per cent. The effect of calcium intake and intestinal hypermotility and their combination on the incidence of osteoporosis is illustrated graphically in Charts 1 and 2, in which the incidence of osteoporosis is given in percentages rather than in number of cases.

Table VI lists the symptoms most frequently encountered in this series of cases. No correlation is found to exist between any of these symptoms and the incidence of osteoporosis except in the case of constipation where a borderline positive correlation ($P=5$ per cent) is found and in the case of abdominal pain where a definitely negative correlation is found. The correlation between constipation and osteoporosis supports the previous finding of correlation between bowel function and osteoporosis, all but one case of constipation being of the spastic type. It is difficult to explain the negative correlation be-

tween abdominal pain and osteoporosis except for the fact that this series includes many cases of organic abdominal disease such as peptic ulcer and gall-bladder disease; and no attempt is made here to distinguish between types and locations of pain. A much larger series of cases would be required in order to sub-classify the various types of abdominal pain and discomfort.

Conclusions

In conclusion, it can be stated, therefore, that this study shows a definite, positive correlation between osteoporosis and age, condition of the teeth, calcium intake (as defined) and intestinal hypermotility (as defined). No correlation is found between osteoporosis and sex, civil state, gastric acidity and pregnancy. It might well be that a larger series of cases would bring out a correlation with one or more of these later factors. When the adequate and inadequate calcium intake groups are further subdivided according to bowel function, a further correlation with osteoporosis is found. Insufficient number of cases in the manual labor group makes statistical evaluation on the basis of occupation impossible. We believe, also, that we can conclude from this study that we have in this method a valuable measure of the calcium reserves of the body.

We are indebted to Dr. A. E. Treloar of the Division of Biostatistics, University of Minnesota, for guidance in the analysis of the data in this study.

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TUBERCULOSIS IN THE ARMY

Medical tests of Canadian army recruits are being sharpened to the point where today only about one out of 1,000 men develop tuberculosis after being accepted in the army. Since May, 1941, a total of 895 men have been discharged from the army because of pulmonary tuberculosis, but of that number 251 had served for several months before being x-rayed. —MAJOR G. T. ZUMSTEIN, Royal Canadian Army Med. Corps, *Bulletin Canadian Tuber. Assn.*, March, 1942.

TERATOMATOUS CHORIONEPITHELIOMA OF THE OVARY

Critical Review of Literature, With Report of a New Case

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THE presence of chorionepithelioma in testicular teratomata was described by Schlagenhauer in 1902. He suggested that the chorionepithelioma was derived from the outer epithelial layer of fetal membranes. In the same year Kleinhans reported chorionepithelioma of the ovary which he believed to have followed an ovarian pregnancy. In 1904 Pick described the first case of ovarian teratoma containing chorionepithelioma. In using the term "teratoma" the terminology described by Robert Meyer will be followed.

The diagnosis of chorionepithelioma, whether it occurs after pregnancy or in a teratoma, is based on definite histological findings. Seitz lists the following findings that must be present:

1. Tumor is composed of both syncytium and Langhans cells.
2. Tumor cells are arranged in masses or cords with Langhans cells inside and the syncytium around the periphery.
3. Tumor has no connective tissue stroma of its own.
4. There is no vascular supply within the tumor.
5. The tumor cells grow toward, surround and penetrate maternal blood vessels.
6. There is coagulation of tissue, hemorrhage and necrosis.

Since the description of chorionepithelioma of the ovary without evidence of tumor in the uterus or tube by Kleinhans in 1902, forty-one other cases have appeared in the literature. Not all cases are alike, for it is apparent that there are two fundamental sources of chorionepithelioma of the ovary: (1) a pregnancy in the uterus, tube or ovary, (2) a teratoma.

There are three possibilities for the origin of the tumor following pregnancy:

1. Transportation of chorionepithelioma to the ovary from the uterus or tube followed by complete regression of the primary tumor.
2. Transportation of normal chorionepitheli-

um to the ovary from the placental site of an intra-uterine or tubal pregnancy; the chorionepithelium then undergoes malignant degeneration at the new site.

3. Ovarian pregnancy.

That these three possibilities exist is easily understood, but to prove a single specific origin in the individual case is difficult. It is important, where site of origin is not clear, to study thoroughly the generative organs for evidence of primary tumor as Risel (1914) has done. In his case, a twenty-five year old woman who had had three previous pregnancies, the last eight months prior to operation, was found to have a hemorrhagic tumor of the right ovary which was histologically diagnosed chorionepithelioma. He found a small brown scar in the fundus of the uterus composed of a mass of clear granulation cells containing lipoid, blood pigment and showing destruction of elastic fibers in the uterine muscle and vessels. He considered the area as a remnant of a primary tumor which had followed the previous pregnancy and had undergone regression.

Chorionepithelioma of the ovary occurring in the mature, nonvirginal woman is best considered of placental origin in the absence of teratomatous findings. Although the patient's last pregnancy may have been many years before, it is always possible that a new and unsuspected pregnancy may have intervened. Some authorities believe the tumor tissue may have a long latent period before the appearance of clinical symptoms, thus explaining the apparent non-relationship to a past pregnancy. The origin of tumors occurring in the virgin is indefinite unless other tissues characteristic of teratoma are found, such as glia, cartilage, or muscle.

Pure chorionepithelioma of the ovary without evidence of primary tumor elsewhere may represent an overgrowth of chorionepithelioma with the destruction of the other teratomatous tissue, or it may represent primarily an exclusive development of special teratomatous cells. In the

case described by Bettinger (1932), a seven year old child was operated upon for the removal of an ovarian tumor composed of masses of Langhans cells and syncytium, with large areas of hemorrhage and necrosis. Thorough examination of the tumor failed to reveal other teratomatous constituents. It represented a teratoma since the remote possibility of pregnancy may be ignored. Similar cases in children have been reported by Read (1928) and Tscherne and Schaffer (1939).

In the adult, chorionepithelioma of the ovary can only be proven teratomatous if other tissues characteristic of teratoma are found. Even then it is theoretically possible for teratoma and pregnancy to be combined. When pure chorionepithelioma of the ovary occurs in the adult, one should carefully search uterus and tube for evidence of primary tumor or placental site and only then consider the remote possibility of the very infrequent teratoma. Only twelve proven teratomatous chorionepitheliomata of the ovary are known. Eight occurred in children before puberty and three of these failed to reveal other teratomatous elements.

The presence of chorionic villi in a chorionepithelioma of the ovary is good evidence that the tumor did not arise in a teratoma. Chorionepithelioma of the ovary containing villi has been reported by Dougal (1924) and Sunde (1922); both cases were considered of placental origin. Theoretically, villi could occur in the teratoma if embryonal mesenchyme were present and could form an adequate stroma for the villi and, secondly, if blood vessels were present, within which the villi might advance. However, in spite of advanced embryological structures, as umbilical cord, occurring in teratomata, normal placental tissue has never been reported. Pick (1904) described a case which he believed represented a dermoid cyst with hydatidiform mole. A thirty year old woman had a dermoid cyst and a tube in which pregnancy had occurred removed from the same side. The isthmus portion of the tube was enlarged to the size of a walnut and contained placental tissue. The dermoid cyst had a separate cystic area toward the tubal pole; the cyst had a smooth lining and contained serous fluid and a papillary structure composed of grape-like vesicles, partly necrotic and partly swollen and presenting marked regressive changes. He believed the structure represented

a hydatidiform mole which may have arisen from the tubal pregnancy or from the teratoma. That it originated from the teratoma is unlikely since the structure was in a cyst separate from the main mass. From the description it was more likely a cystoma papillomatosum in degeneration.

Chorionepithelioma of the ovary in childhood is manifested by precocious sexual development and uterine bleeding. In the adult the usual complaint is irregular vaginal bleeding, suggesting a diagnosis of ectopic pregnancy. There is usually some abdominal distress and often a palpable mass. The Aschheim-Zondek and Friedman tests are positive. In the child, the positive pregnancy test is sufficient to make a diagnosis of teratomatous chorionepithelioma. Fasold (1931) reported a case of a child eight years old, who presented precocious sexual development. The Aschheim-Zondek test was positive. A tumor mass occupied the right adnexal region. A portion of a small nodule in the neck was removed for biopsy and revealed tissue similar to chorionepithelioma. No further operation was performed nor was an autopsy subsequently done. A diagnosis of chorionepithelioma of teratomatous origin seems unquestionable because of the patient's age and the positive pregnancy reaction.

Several types of ovarian tumor, in the course of their growth, may undergo changes in morphology as a result of varying conditions within the tumor and simulate chorionepithelioma by the development of nonspecific syncytium. This phenomenon has evoked speculation over a third possible origin of chorionepithelioma of the ovary. However, similar changes of carcinoma cells into syncytial masses when they are in contact with blood are known to occur in organs other than the ovary. It is, therefore, confusing to classify ovarian tumors having these structures with chorionepithelioma originating in a teratoma or after a pregnancy as Miller has done in the Henke-Lubarsch handbook of pathology. The phenomenon has no relationship to chorionepithelioma and is only mentioned to avoid diagnostic error. It is valuable, in this respect, to describe cases in which the diagnosis or the appearance of the tumor is deceptive.

Ovarian tumors containing cells resembling Langhans cells and syncytium have been reported by Michel (1905), Niosi (1905), Schmaus

(1906), Fergue and Massabauu (1913), Bock (1924), Klaften (1934) and others. Michel described a case of a sixteen-year-old virgin who was operated upon for an ovarian tumor which was diagnosed alveolar carcinoma. Two and a half years later the girl died of recurrence. At autopsy, the entire abdomen was filled with tumor of pithy consistency and rich vascular supply. The tumor varied in color from gray to dark black. The gray areas presented the alveolar carcinoma structure while the darker areas and the metastases contained massive areas of hemorrhage and fibrin meshwork. Around the margins of the hemorrhagic areas were masses of clear, sharply circumscribed cells resembling Langhans cells, as well as darker colored masses of syncytium containing many nuclei. There were no other findings to suggest teratoma. Michel interpreted these findings as secondary and stated that one should be cautious in the diagnosis of chorionepithelioma of the ovary because carcinoma cells in contact with blood may form very similar syncytium.

A case described by Bock (1924) differed from Michel's case in that the original tumor presented a picture resembling chorionepithelioma. A thirteen year old virgin was found at laparotomy to have an inoperable tumor of the right ovary. The tumor was nodular and varied in color from white to dark red. Microscopical examination of the larger nodules revealed large, solid masses of carcinoma. In the hemorrhagic and necrotic areas between masses of carcinoma were nests of small, differentiated cells resembling Langhans cells surrounded by masses of protoplasm containing many nuclei. There were no other forms of tissue in the specimen to suggest teratoma. Again, the chorionepithelioma-like picture occurred in an ovarian carcinoma only where the cells were in contact with blood.

Schmaus (1908) described a similar ovarian tumor occurring in a child of fifteen years. At laparotomy a large left ovarian cyst was removed. Inside the cyst was a solid white nodule with a few hemorrhagic areas scattered through the tissue. The tumor was an adenocarcinoma. In the hemorrhagic areas and in the metastases, masses of clear cells covered by syncytium were found.

Klaften (1934) described in an eleven year old child a tumor which presented a problem of differential diagnosis. The major portion of

the tumor was composed of round darkly staining cells similar to granulosa cells. Other areas presented masses of smaller cells surrounded by syncytium. The diagnosis could have been (1) granulosa cell tumor with rich plasmodium formation similar to that in chorionepithelioma, (2) teratoma, or (3) a collision of teratoma and granulosa cell tumor. A diagnosis of teratoma was made after careful examination disclosed adenomatous structures similar to pseudomucinous cystoma and intestinal epithelium. Because of the connective tissue formation and new blood vessels in the tumor, the areas suggesting chorionepithelioma were considered only plasmodium formation.

TABLE I. AUTHORS OF PREVIOUS PUBLICATIONS ON CHORIONEPITHELIOMA OF OVARY, GROUPED ACCORDING TO PROBABLE ORIGINS OF THE TUMORS.

Primary or Teratomatous	Following Pregnancy	Indefinite
Pick, L. 1904	Kleinhaus, F. 1902	Lubarsch, O. 1904
Albrecht, H. 1913	Iwase, Y. 1908	Gliniski and Rosner 1905
Read, C. 1928	Iwase, Y. 1908	Miller, F. 1914
Freund, E. 1929	Fairbairn, J. 1909	Bollag, W. 1916
Fasold, H. 1931	Klotz, R. 1913	Kynoch, J. 1919
Bettinger, H. 1932	Kedrierski, A. 1913	Chisholm, J. 1920
Siegmund, H. 1932	Risel, W. 1914	Rohdenburg, G. 1926
Fikentscher, R. 1937	Ries, E. 1915	Varo, B. 1929
Tscherne and Schaffer 1939	Frank, R. 1916	Varo, B. 1929
Sbarcea, J. 1939	Seitz, A. 1916	Simard, L. 1931
Oda, Matsushite, and Kurosu 1940	Phillips, M. 1920	Simard, L. 1937
Backus, and Griffin 1941	Sunde, A. 1922	Maki and Takeda 1931
Author's case 1941	Dougal, D. 1924	
	Voigt, G. 1925	
	von Zalka, E. 1928	
	Preston, and Goy 1937	
	Peters, F. 1940	

Since the origin of chorionepithelioma of the ovary is of great interest, an attempt has been made to sort out all cases reported in the literature and assign to them the most likely origin, where this has not already been done. As mentioned, Risel considered his case a primary uterine chorionepithelioma which, after metastasizing to the ovary, underwent spontaneous regression. Kleinhaus (1902) attributed his to an ovarian pregnancy. Tumors reported by Iwase (1908), Ries (1914), Voigt (1925), Simard (1931) and Peters (1940) all occurred in women in the late childbearing age with histories of previous pregnancies. Fairbairn (1909), Klotz (1913), Kedrierski (1913), Frank (1916), Seitz

(1916), Phillips (1920), Sunde (1922), Dougal (1924), Zalka (1926) and Preston (1937) have reported the finding of chorionepithelioma in the ovary without evidence of a primary tumor in the uterus or tube. These tumors occurred in women between twenty-one and thirty-one years of age who had histories of recent pregnancies or periods of amenorrhea followed by vaginal bleeding. In this group, Klotz found structures similar to villi in blood vessels. Dougal and Sunde found definite villi in their tumors.

Simard (1937) described a case occurring in a virgin seventeen years of age. Maki and Takeda (1931), Glinski and Rosner (1905) and Varo (1929) have also reported similar cases in virgins from seventeen to twenty-seven years of age. In these cases no definite teratomatous tissue was mentioned. That they may have arisen in teratomata can be neither denied nor proven. Kynoch (1919) reported a case of chorionepithelioma occurring in a twenty-four year old nullipara. The patient complained of irregular vaginal bleeding prior to operation which suggests pregnancy but the case is not decisive. The presence of chorionepithelioma in the ovary is mentioned by Rohdenburg (1926) and Chisholm (1920) but the information is not sufficient to draw conclusions. F. Miller (1914) reports a case in which the primary tumor was grossly diagnosed sarcoma and in a recurrence chorionepithelioma was found. Since the original tumor was not examined histologically, it is impossible to determine the exact type it represented, but its occurrence in a virgin of seventeen suggests that it may have been of teratomatous origin. Bollag (1916) described a tumor of the ovary occurring in a nineteen year old virgin in which the predominant tumor element was chorionepithelioma while other areas demonstrated sarcoma. This tumor may have been a teratoma, but the description is not clear. Lubarsch (1904) (quoted by Pick) diagnosed chorionepithelioma from a biopsy taken from a pelvic tumor involving the entire pelvis of a thirteen year old child. Because of the extent of the tumor, it was impossible to determine the original site, and no autopsy was done. On the basis of age alone, it might be assumed that the tumor was an ovarian teratoma.

Since Pick's description of the first teratomatous chorionepithelioma of the ovary, eleven other conclusive cases have been reported in the

literature. To this group we add one new case.

Case 1.—Pick (1904). Child nine years of age admitted to the hospital because of abdominal enlargement. At laparotomy a teratoma of the ovary was removed. The tumor was composed of the usual teratomatous structures in addition to chorionepithelioma identical histologically with that found in tumors of the uterus after pregnancy. The patient died several weeks later.

Case 2.—Albrecht (1913). Virgin eighteen years of age from whom a tumor of the right ovary the size of a child's head was removed. The tumor was mostly necrotic and contained numerous hemorrhagic areas. The tissue showed the usual histological picture of chorionepithelioma. The patient died of metastases.

Case 3.—Read (1928). Child eleven years of age admitted to the hospital because of slight vaginal bleeding. She developed pain in the abdomen. At laparotomy a right ovarian tumor on a pedicle was found. Several twists in the pedicle accounted for the pain. The tumor was coarsely lobulated and had an intact capsule. On section the tumor was firm and elastic and contained several cystic spaces filled with clear fluid and blood. On histologic examination only typical chorionepithelioma was found. The uterus and tubes were normal. Patient died of metastases one month after operation.

Case 4.—Freund (1929). Child seven years of age admitted to hospital because of pain in the abdomen. At laparotomy a tumor was found arising from the right ovary. On section, the tumor was composed of white-gray and dark red hemorrhagic areas. On microscopic examination, the dark red areas were typical chorionepithelioma, the white-gray areas contained cartilage, bowel, smooth muscle, nervous tissue and squamous epithelium. The patient died.

Case 5.—Fasold (1931). Child eight years of age admitted to the hospital because of vaginal bleeding associated with precocious sexual development. The Aschheim-Zondek test was positive. A tumor was felt in the region of the right ovary. Biopsy of a nodule in the neck revealed chorionepithelioma. No operation or autopsy was done, but in view of the positive pregnancy test and the age of the patient, the diagnosis is clear. Patient died.

Case 6.—Bettinger (1932). Child seven years of age admitted to the hospital because of pain in the pelvis associated with general malaise and weight loss. There was precocious development of the breasts. At laparotomy a tumor the size of a fist was removed from the right adnexal region. Histological examination revealed large masses of necrosis and hemorrhage and in better preserved areas, chorionepithelioma. No other teratomatous tissue found. Because of the patient's age the diagnosis is clear. The patient died.

Case 7.—Siegmund (1932). Child six years of age admitted to the hospital with a history of precocious

development of the breasts, external and internal genitalia, and the appearance of vaginal bleeding. Aschheim-Zondek test was positive. A tumor was removed from the left adnexal region which, on section, varied in appearance; some areas were solid, others cystic. The tumor was gray-red in color with scattered black areas. Glial tissue, squamous epithelium and cysts lined by cylindrical epithelium were found on histological examination. Areas composed of masses of Langhans cells covered by syncytium were described. At autopsy the diagnosis was definitely established. All the metastases contained pure chorionepithelioma.

Case 8.—Fikentscher (1937). Child fourteen years of age admitted to the hospital complaining of vaginal bleeding. A tumor the size of a man's fist was removed along with a nodule in the omentum. On section the tumor showed extensive hemorrhagic infarction. There were two parts of the tumor, one composed of typical structures of teratoma and another of typical chorionepithelioma. The nodule in the omentum was also chorionepithelioma. The Aschheim-Zondek test was positive after surgery. Patient ultimately expired with metastases. Chorionepithelioma was present in all metastases.

Case 9.—Tscherne and Schaffer (1939). Child eight years of age admitted to the hospital with a history of vaginal bleeding for five months, increase in the size of the breasts, and growth of hair about the genitalia. The Aschheim-Zondek test was positive. A large tumor involving the uterus was removed. Section of the tumor showed it to be brown-red in color and very friable. Microscopically the tumor was typical chorionepithelioma. There were no teratomatous areas mentioned. Patient died with metastases.

Case 10.—Sbarcea (1939). Woman twenty-seven years of age admitted to the hospital with a history of vaginal bleeding for ten months. The Aschheim-Zondek test was positive. At laparotomy a left ovarian tumor the size of a man's head was removed. The rest of the generative tract was normal. The tumor was composed of cartilage, smooth muscle, glia, pseudomucinous cysts and squamous epithelium. Typical chorionepithelioma was found in the hemorrhagic and necrotic areas. Eight days after operation the Aschheim-Zondek test was positive. Patient died and at autopsy all metastases were chorionepithelioma.

Case 11.—Oda, Matsushita, Kurosu (1940). Child eleven and one-half years of age admitted to the hospital complaining of mass in abdomen. There were no other symptoms. A right ovarian tumor the size of a fist was removed. The tumor was nodular, with gray and bloody areas. The tumor was composed of chorionepithelioma and other teratomatous elements including cartilage, cysts and tubules lined by columnar epithelium, squamous epithelium and muscle. Two subsequent operations were performed. Each specimen showed chorionepithelioma. Child expired after the third operation.

Case 12.—Backus, G. R., and E. P. Griffin, Jr. (1941). Child thirteen years of age was admitted to the hospital complaining of right lower quadrant pain. At laparotomy a right ovarian tumor the size of an orange was removed. The tumor had a firm, intact capsule. Grossly the tissue was hemorrhagic; microscopically, it was composed of typical Langhans and syncytial cells. No other teratomatous elements reported. The tubes and uterus were normal. Twelve days after operation the Friedman test was positive. The child died six months later. At autopsy numerous metastases composed of chorionepithelioma were found. The uterus and tubes were free of tumor. Because of the patient's age, the absence of the menarche, the intact hymen and the positive Friedman test, a diagnosis of teratomatous chorionepithelioma is acceptable.

Author's New Case of Teratomatous Chorionepithelioma of the Ovary

Mrs. L. M., aged nineteen, no pregnancies. Menstrual periods began at the age of fifteen and were regular until one year prior to operation, when periodicity was lost and duration of bleeding prolonged. The patient bled from March 14 to March 21, 1940, from March 31 to April 9, from May 2 to May 9, from May 17 to May 22 and from June 17, 1940, to the time of curettage on July 6, 1940. At the time of curettage a definite mass was felt in the left adnexal region. A diagnosis of ectopic pregnancy was made.

Laparotomy was performed on July 8, 1940, for removal of a mass measuring eight centimeters in diameter from the region of the left ovary. The tube was not involved. The postoperative course was uneventful. Sixteen days after the operation the patient developed pain in the left lower quadrant and shortly thereafter a mass was noted. Vaginal bleeding recurred. A second operation was carried out on August 29, 1940, at which time a hemorrhagic mass ten centimeters in diameter was removed from the left broad ligament. The tumor had extended to the body of the uterus and the latter also was removed. The right ovary and tube were left in situ. Six weeks after the second operation the Friedman test was positive. The patient was given deep x-ray therapy to the abdomen postoperatively and to the chest after metastases were demonstrated. The patient expired eight months after operation with cerebral metastases. Autopsy permission was not granted.

Surgical specimens were examined through the courtesy of Dr. Louis Roberts.

Description of the Specimens

1. *First Operative Specimen.*—Macroscopically: A round ovarian tumor eight centimeters in diameter, with a thin smooth walled capsule which was gray in the thicker areas and dark colored in the thinner, more transparent areas. There were small pebble-like elevations on the surface. On gross section the tumor was dark red to black with a very narrow peripheral zone of gray best seen near the hilum of the ovary. A few strands or septa from the capsule extended a short distance into the tumor substance. Several small

smooth-walled cysts filled with thin serous fluid were present in the gray areas.

Microscopically: The primary tumor contained ovarian stroma with areas of well preserved cortex, in which there were numerous normal primordial fol-

licles. The surface epithelium dipped into the cortex and formed deep clefts. A developing follicle in the same area demonstrated granulosa cell layer five or six cells thick and a theca layer four or five cells thick. The theca cells stained more clearly and had larger nuclei. A second follicle in regression had a granulosa layer two cells thick, the nuclei of which were arranged in antipodal manner, with the outer row of nuclei toward the theca and the inner row of nuclei toward the lumen. The theca cells were proliferating. There was also an atretic follicle in which the granulosa appeared as an interrupted cord or darkly stained cells lying in the center of a fibrous and hyaline membrane which in turn was covered by a zone of proliferating theca cells.

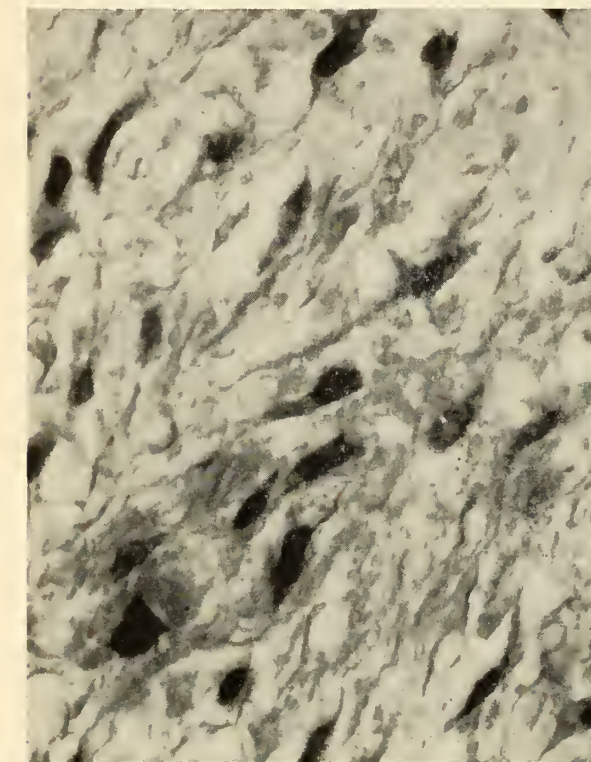


Fig. 1.



Fig. 2.

licles. The surface epithelium dipped into the cortex and formed deep clefts. A developing follicle in the same area demonstrated granulosa cell layer five or six cells thick and a theca layer four or five cells thick. The theca cells stained more clearly and had larger nuclei. A second follicle in regression had a granulosa layer two cells thick, the nuclei of which were arranged in antipodal manner, with the outer row of nuclei toward the theca and the inner row of nuclei toward the lumen. The theca cells were proliferating. There was also an atretic follicle in which the granulosa appeared as an interrupted cord or darkly stained cells lying in the center of a fibrous and hyaline membrane which in turn was covered by a zone of proliferating theca cells.

Masses and cords of lutein cells were scattered through the cortex. Some clusters of these cells were better preserved than others. These were luteinized theca cells, large, round and rich in cytoplasm with large, round nuclei. Some cells showed vacuolization of the cytoplasm and pyknosis of the nuclei. One large mass of cells had a cavity and immediately about the cavity were smaller, less luteinized theca cells.

Near the surface, and in one instance elevating the surface were small, sharply circumscribed nodules of decidua-like cells. The cells were large, clear cells

cells showed degeneration, irregular cell outline, pyknosis or absence of the nuclei. A few cells were scattered along the surface of the ovary.

Glial tissue was present in immediate contact with the ovarian stroma. In better preserved areas there were typical forms of neuroglia, the astrocyte with long smooth unbranched fibers and irregular cell outline, and the smaller cells with less distinct cellular processes, the oligodendroglia (Fig. 1). Within the glial tissue were several small cysts lined by squamous epithelium. In one the cyst wall had been partly destroyed and filled with necrotic tissue from the chorionepithelioma. It contained three small bodies made up of concentric rings of hyaline material. A layer of squamous epithelium could be recognized about one of the bodies. These appeared to be cholesteatomata (Fig. 2). A second cyst lined by squamous epithelium was surrounded by a wide zone of tissue very rich in collagen fibrils. Farther from the cyst the tissue assumed the normal appearance of glial tissue.

One cyst, recognized grossly, was lined by a single layer of tall columnar epithelium similar to that in pseudo-mucinous cystoma. The cells varied from tall columnar to very low cuboidal. At one point the epithelium dipped into the connective tissue to form a gland. In the immediate vicinity were other tubular

or glandular structures lined by similar columnar epithelium. Parts of the cyst epithelium and glands were necrotic. In another area of the teratoma were adenomatous masses of the same tissue. The cells were arranged in a tubular manner separated by fine con-

nucleated. There was a heavy infiltration of lymphocytes in this area.

2. *Second Operative Specimen.*—Macroscopically: Recurrent tumor and uterus. The recurrent mass

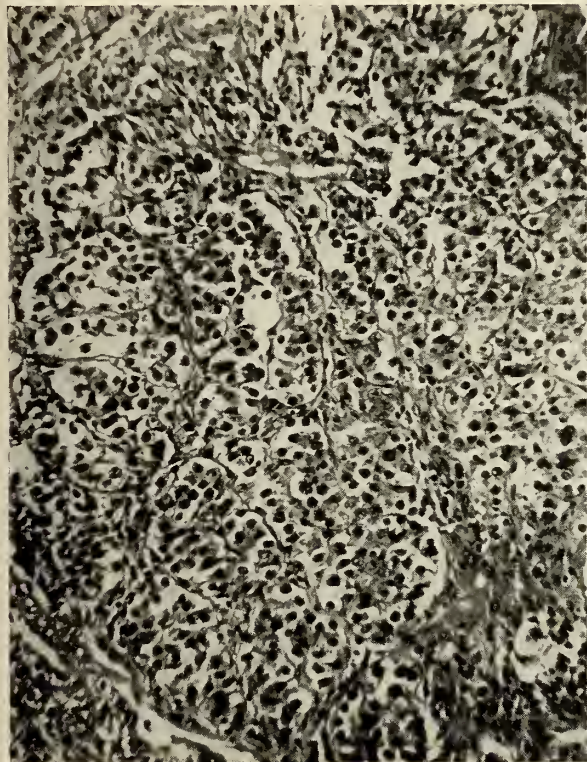


Fig. 3.

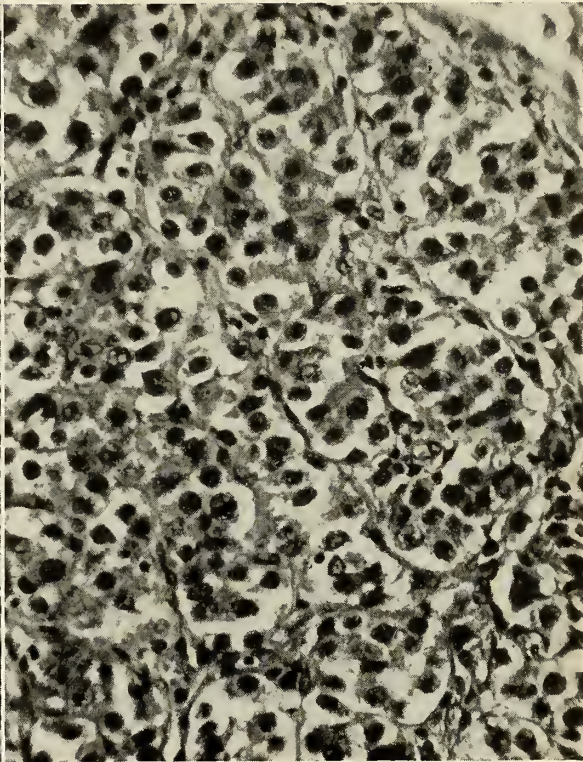


Fig. 3a.

nective tissue septa (Figs. 3, 3a). In the necrotic areas of this tissue were large masses of lymphocytes.

Sections of the hemorrhagic tumor tissue revealed masses and cords of polygonal, almost round cells varying widely in size. The cytoplasm was clear, the nuclei round. Larger cells had more distinct cell outlines. Where these cells were in contact with blood and plasma, syncytial cells had developed. In the same areas transitional stages could also be seen (Fig. 4). The syncytium appeared as a thin line or strip of tissue containing numerous dark staining irregularly shaped nuclei and was situated along the surface of masses of Langhans cells where they were in contact with blood (Fig. 5). Some areas showed masses of cytoplasm containing many darkly stained nuclei of various shapes. Regression and necrosis of the chorionepithelioma could be seen where the tissue was unable to obtain sufficient nourishment to survive. In one area, the chorionepithelioma was invading glial tissue. At the junction of the two, the invaded tissue and chorionepithelioma had reacted by coagulation.

The chorionic cells also invaded the adenomatous structures previously described (Figs. 3, 3a). Here only large isolated cells with irregularly shaped darkly stained nuclei were seen, some of which were multi-

occupied the region of the left tube and broad ligament. The tumor tissue had extended to and involved the left lateral wall of the uterine corpus and had covered almost half of the upper surface of the fundus. The tumor invaded the uterine wall in nodular manner but did not involve the cavity. The uterine cavity was smooth and presented no abnormal findings. The cervical os was patent. The left tube was adherent to the mass on the posterior surface. The tubal lumen could be identified and was patent, without evidence of tumor involvement. The right tube and ovary were missing. The tumor mass was irregular in outline and measured 9x6.5x4 centimeters. The basal part of the tumor was irregularly ragged and friable with dark red to black color. The upper part of the tumor was smooth and covered by a thin connective tissue capsule. A strand of omentum was adherent to the posterior and lateral surfaces of the mass. Within the omental tissue was a nodule of hemorrhagic and necrotic tissue grossly similar to the main tumor tissue.

Microscopically: Sections taken from the recurrent mass revealed typical masses and strands of Langhans and syncytial cells. Sections of the uterus where the tumor was adherent showed invasion and replacement of the outer layers of the musculature by the chorion-

epithelioma. The inner layers of the myometrium and the endometrium were not involved. Although the tube was surrounded by tumor tissue, its musculature and mucosa were not invaded. There were no other teratomatous constituents found in the recur-

of the ovary to which has been added one new case of teratoma with chorionepithelioma of the ovary occurring in a nineteen-year-old woman who had never been pregnant.

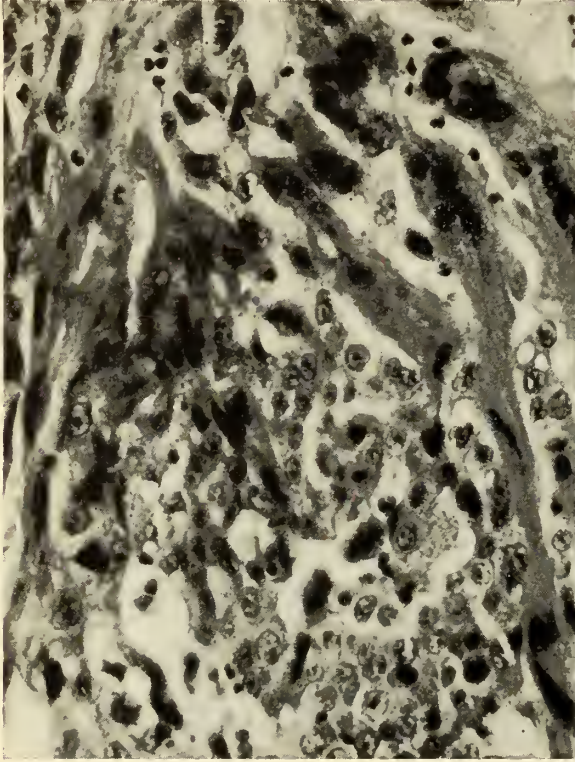


Fig. 4.

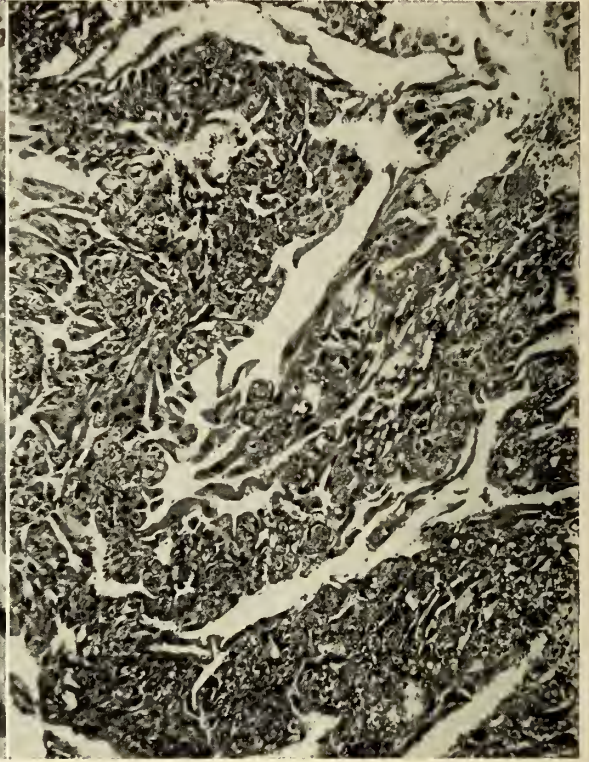


Fig. 5.

rent tumor. The diagnosis was, then, primary chorionepithelioma arising in a teratoma of the ovary.

Summary

Chorionepithelioma of the ovary without evidence of primary tumor elsewhere may arise following a pregnancy or as a part of a teratoma.

The diagnosis of teratomatous chorionepithelioma demands the finding of other teratomatous constituents in the mature individual. This is most often not necessary in the prepubertal child.

Sytoplasmatic changes of carcinoma tumor cells in contact with blood must not be called chorionepithelioma since this term implies origin of the tumor from ectoblastic cells. The term pseudo-chorionepithelioma is acceptable.

A review of the literature dealing with chorionepithelioma of the ovary revealed twelve definite cases of teratomatous chorionepithelioma

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INTERAURICULAR SEPTAL DEFECT

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SLIGHT patency of the foramen ovale or an opening of sufficient size to permit passage of a probe is the commonest of all congenital cardiac defects, the incidence, according to Patten, being approximately 25 per cent. This defect is merely a slight variation from the normal development and is of no clinical importance except in some cases of terminal myocardial failure with increased pressure in the right auricle, a condition under which it may give rise to paradoxical embolism or to terminal cyanosis. Defects 1 cm. in diameter or larger in the interauricular septum are real congenital malformations rarely diagnosed clinically and found infrequently at postmortem examination. Four cases have been reported previously from the Mayo Clinic, Amberg and Willis having reported the first one in 1926. In 1936 Erickson and Willis

presented another case, and in 1937 Ingham^{9,10} discussed in detail two additional cases.

In 1934 Roesler made a complete review of the literature on this subject and reported one case of his own. In 1940 one of us (Tinney) reviewed the literature since Roesler's article and reported two new cases, making the total number of cases reported eighty-six. Practically all of the clinical and pathologic features typical of interauricular septal defect were well illustrated by the four cases which are reported herewith; the first two cases demonstrated several interesting complications.

Report of Cases

Case 1.—A man fifty years old was admitted to the Mayo Clinic, September 14, 1941, complaining of edema and a rapidly beating heart. In 1925 he had experienced his first attack of tachycardia, which started abruptly, lasted fifteen minutes and stopped suddenly. During the next six years he had had five similar attacks. In 1931 he experienced the first

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Fig. 1. Interauricular septal defect; marked dilatation of the right auricle and ventricle.



Fig. 2. Dilatation of the right ventricle and pulmonary valve.

spell of tachycardia that lasted five hours. At that time roentgen-ray examination revealed cardiac enlargement. Since then the patient had had a similar attack every one to twelve weeks, lasting from thirty minutes to fifteen hours. With each one of these attacks he became severely dyspneic, and the tachycardia always left him with a feeling of epigastric fullness. He took digitalis periodically from 1931 to 1936, when it was discontinued because he was said to have an "incomplete heart block" as a result of the drug. Since 1932 he had taken at least 6 grains (0.4 gm.) of quinidine daily and since June, 1941, he had taken from 20 to 30 grains (1.3 to 2 gm.) daily. In May, 1941, the attacks had become more frequent and prolonged. During the two months prior to admission, auricular fibrillation had been present constantly, dyspnea had been severe, and the patient had noticed gradually increasing edema of the ankles and puffiness under the eyes.

Examination at the clinic revealed marked edema of the extremities, moderate dyspnea, and râles at the bases of both lungs. The left border of the heart was 2 cm. to the left of the midclavicular line. The cardiac sounds were of poor quality and of variable intensity. There was a sharp first sound at the apex, with obliteration of the second sound. The pulse was rapid, unequal, and irregular. The blood pressure measured in millimeters of mercury was 108 systolic and 82 diastolic. The abdomen was distended with moderate ascites, and the liver was palpable to four fingerbreadths below the costal margin.

The electrocardiogram disclosed a rate of 131, auricular fibrillation, and impaired ventricular conduction. A roentgen-ray examination of the thorax revealed marked widening of the right and left borders of the heart and pulmonary congestion.

The clinical diagnosis was chronic mitral endocarditis with stenosis and regurgitation, paroxysmal auricular fibrillation and congestive heart failure.

The patient was treated with salyrgan, digitalis, and quinidine and appeared to be doing very well when he died suddenly, September 23, 1941.

At postmortem examination the peritoneal cavity contained 150 c.c. of clear yellow fluid. The hepatic margin extended 9.5 cm. below the xiphoid cartilage and 2.5 cm. below the right costal margin. Each pleural cavity contained 500 c.c. of clear yellow fluid. The transverse pericardium measured 22.5 cm., and the pericardial sac contained 300 c.c. of clear, dark yellow fluid. The heart weighed 735 gm. (Figs. 1 and 2). There were two "soldiers' spots" at the left side of the base posteriorly, each measuring 3 mm. in diameter. The right auricle and ventricle were markedly dilated and hypertrophied. The left auricle and ventricle also were dilated, but there was no hypertrophy. The interauricular septum was absent, the opening measuring 5.5 cm. in diameter. Near the base of this septal defect there was a small band separating the opening into two apertures, the larger one measuring 5 cm. in diameter and the smaller one 1.5 cm. in diameter. There was dilatation, grade 3, of the rings of the pulmonic valve, tricuspid valve, and pulmonary artery. The pulmonic valve also was thickened. The mitral valve was thickened, the edges were curled under, and the chordae tendineae were thickened and shortened. In the left auricle there were numerous subepicardial hemorrhagic spots 2 cm. in diameter. There was slight sclerosis of the coronary arteries. The diameters of the cardiac valves were as follows: aortic valve, 7.3 cm.; mitral valve, 9.3 cm.; tricuspid valve, 15 cm. and pulmonic valve 11.5 cm. The depth of the left ventricle was 10.2 cm., the thickness of the wall of the ventricle 1.3 cm.; the depth of the right ventricle was 16.5 cm. and the thickness of the ventricular wall 0.6 cm.

Comment.—This case is interesting because the congenital lesion was complicated by mitral

stenosis, regurgitation, and auricular fibrillation. Interauricular septal defect is the only congenital cardiac lesion frequently associated with mitral endocarditis or auricular fibrillation. Because of the presence of mitral stenosis this case is an example of the so-called Lutembacher's disease.

Case 2.—A man aged thirty-six years was admitted to the clinic September 10, 1938, because of abdominal symptoms which proved to be unrelated to the cardiovascular system. He did not give a history of rheumatic fever, but stated that since the age of two years he had been known to have a heart murmur. For one month prior to admission he had noticed dyspnea on very slight exertion and edema of the ankles that had necessitated cutting his slippers.

Examination revealed that the blood pressure measured in millimeters of mercury was 128 systolic and 90 diastolic and the pulse rate was 96 beats per minute. The heart was enlarged, the rhythm regular, and there was a rough systolic murmur at the apex transmitted to the axilla. The liver was enlarged moderately. Roentgenographic and roentgenoscopic examinations of the thorax revealed cardiac enlargement, prominence of the pulmonary conus, and passive congestion. A clinical diagnosis of rheumatic endocarditis was made. The patient was dismissed October 27, 1938, in good condition.

November 15, 1938, the patient began to have daily fever of 0.5° F. with generalized aching pains. In December, 1938, he experienced severe episodes of chills and a temperature of 103° F.; these episodes recurred every four or five days. February 13, 1939, the patient returned to the clinic acutely ill with râles at the bases of both lungs and marked edema of both ankles. The heart was very large, the rate 120, and rhythm regular. Urinalysis revealed albumin grade 1, occasional granular casts and erythrocytes. The concentration of hemoglobin was 8.7 gm. per 100 c.c. of blood and erythrocytes numbered 3,020,000 and leukocytes 9,000 per cubic millimeter.

A clinical diagnosis of congenital heart disease with subacute bacterial endocarditis was made.

February 18, 1939, a blood culture showed green-producing streptococci, four colonies per cubic centimeter of blood. In spite of digitalization dyspnea and edema rapidly became worse. Orthopnea and ascites developed, the patient became disoriented and died suddenly February 19, 1939.

At postmortem examination the right and left pleural cavities each contained 500 c.c. of cloudy, straw-colored, fibrinous fluid. Both lungs showed decreased crepitations with increased frothing and edema. There were two regions of infarction in the upper lobe of the right lung measuring 4 by 2 cm. and 5 by 2 cm. respectively and another region of infarction in the upper lobe of the left lung measuring 6 by 4 cm. The transverse diameter of the pericardium was 13.5 cm., and the pericardial sac contained 300 c.c. of clear, straw-colored fluid. The heart weighed 575 gm. There was a "soldiers' spot" 1 by 0.4 cm. on the anterior



Fig. 3. Interauricular septal defect with vegetation involving the defect; hypertrophy of the right ventricle.

surface of the left ventricle and another "soldier's spot" 2 by 3 cm. on the posterior surface of the right ventricle. There were vegetations on the mitral valve, which showed stenosis, grade 2, and insufficiency, grade 1, with marked shortening of the chordae tendineae. The interauricular septum was patent, the opening measuring 3 by 4 cm. A large vegetation was found directly in the open interauricular septum (Fig. 3). There were dilatation, grade 2, and hypertrophy, grade 3, of the right ventricle. The left ventricle revealed hypertrophy, grade 2, and the coronary arteries were sclerotic. Diameters of the cardiac valves were as follows: aortic valve, 5.5 cm.; tricuspid valve, 14 cm.; pulmonic valve, 10 cm. The depth of the left ventricle was 8.7 cm., the thickness of the wall of the left ventricle 1.8 cm.; the depth of the right ventricle was 9.3 cm. and thickness of the right ventricular wall 0.6 cm. Chronic passive congestion of the liver, grade 2, and fibrinous perisplenitis, grade 1, were present.

Comment.—This case is of particular interest for several reasons. A clinical diagnosis of congenital heart disease was made on the basis of the history of a murmur since infancy, the enormous hypertrophy of the right side of the heart, and the presence of a large pulmonary conus. Since the septal defect was associated with mitral stenosis, this case is another example of Lutembacher's disease. By far the most interesting aspect of this case is the presence of subacute bacterial endocarditis, an unusual complication of interauricular septal defects. To our knowledge,

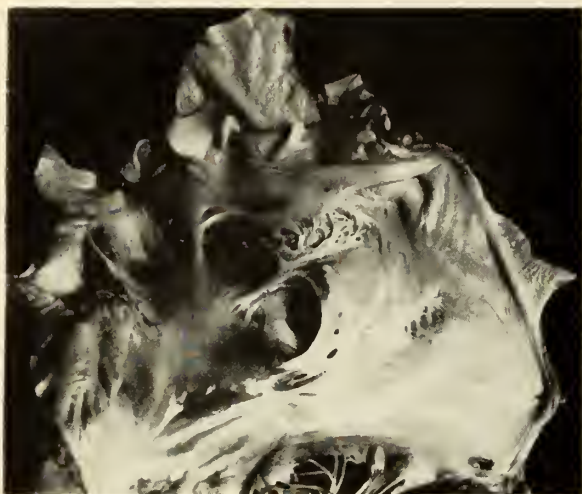


Fig. 4. Interauricular septal defect.

this is the second case ever reported in which the vegetations involved the septal lesion.

Case 3.—A man sixty-three years old was admitted to the clinic in December, 1927. In the course of physical examination the only clinical sign pertaining to the heart was a soft systolic murmur in the aortic region. January 7, 1928, the patient died suddenly of an entirely unrelated surgical condition.

At postmortem examination the anterior edges of the left lung were found adherent to the pericardium which measured 12 cm. in its transverse diameter and contained 75 c.c. of clear yellow fluid. The heart weighed 345 gm. The endocardium and valves were essentially normal except for the right and left coronary cusps of the aortic valve which contained irregular nodules of calcium deposit on the inner wall. The foramen ovale was almost completely open. On the left side of the interauricular septum there was a membranous flap attached posteriorly and open anteriorly, which, when elevated, showed an opening of 2 cm. in diameter (Fig. 4). This flap was held in place by thin strands of membrane. There was sclerosis, grade 2, of the coronary vessels. The diameters of the valves of the heart were: aortic valve, 6.5 cm.; mitral valve, 8.5 cm.; tricuspid valve, 8.7 cm. and pulmonic valve, 6.5 cm. The depth of the left ventricle was 7.5 cm., and the thickness of the left ventricular wall 1.2 cm.; the depth of the right ventricle was 7 cm., and the thickness of the right ventricular wall 0.4 cm. Histologic examination of the left ventricle revealed an increase in connective tissue, especially marked between the fasciculi and the individual muscle fibers, which were hypertrophied.

Case 4.—The patient was a woman fifty years old. Only the interesting postmortem findings in this case are presented. There was a pigeon breast deformity of the thorax. The pericardial sac measured 12 cm.



Fig. 5. Interauricular septal defect.

in its transverse diameter and contained 75 c.c. of clear yellow fluid. The heart weighed 342 gm. The appendages, endocardium, and valves were normal. There was an interauricular septal defect measuring 3 by 2.5 cm. Both auricles and ventricles showed dilatation, grade 3 (Fig. 5). In the interventricular septum, 1 cm. below the right posterior commissure of the aortic valve, there was a region of marked thinning 0.6 cm. in diameter, but there was no patency of this septum. Diameters of the cardiac valves were: aortic valve, 6.5 cm.; mitral valve, 11.5 cm.; tricuspid valve, 14.5 cm. and pulmonic valve, 7 cm. The depth of the left ventricle was 11 cm., and thickness of the left ventricular wall 1 cm.; the depth of the right ventricle was 12 cm., and thickness of the right ventricular wall, 0.6 cm. Marked generalized edema of both lungs and congestion of the liver were present.

Histologic examination revealed a small area of chronic myocardial infarction on the anterior surface of the right ventricle. Both lungs, the suprarenal glands, the liver, and the right kidney revealed passive congestion; an old healed infarct was found in the right kidney.

Pathologic Features

Interauricular septal defect is the result of failure of development and union of the three embryonic anlagen: the endocardial cushions, the septum primum, and the septum secundum. Originally the atrium is a single cavity. From the superior portion of this cavity the primary septum grows down to meet a much smaller sep-

tum, called the "endocardial cushions," which has developed from the inferior portion of the single atrium. The fusion of these two septums obliterates the ostium primum or primary communication between the auricles. Then an opening known as the "foramen ovale," or ostium secundum, is formed in the primary septum, thus reestablishing the communication between the auricles. Later in the development of the fetus another septum, the septum secundum, grows down to the right of the primary septum. The foramen ovale is obliterated after birth by the fusion of this septum secundum with the primary septum. If the primary septum and the endocardial cushions fail to fuse the resulting defect is called a persistent ostium primum. If the union of the primary septum and the septum secundum fails the defect is called a persistent ostium secundum or patent foramen ovale.

This congenital lesion may occur as a single lesion. It frequently is combined with mitral stenosis, or it may appear in association with other congenital cardiovascular malformations. There is a difference of opinion concerning the relation of the mitral stenosis and the septal defect in many of these cases. Lutembacher expressed the belief that mitral stenosis is congenital in origin and produces an increased pressure in the left auricle which prevents the septum from closing, making the septal lesion a secondary one. Most authors, including Roesler and McGinn and White have expressed the opinion that the septal defect is the primary lesion and that the mitral endocarditis is an acquired and coincidental lesion. The latter view is the more feasible because approximately 25 per cent of cases of rather marked interauricular septal defect are uncomplicated by any mitral lesion.

In the presence of interauricular septal defect there are, aside from the septal defect, several other characteristic changes in the heart. The right auricle and ventricle are markedly hypertrophied and dilated, dilatation usually exceeding hypertrophy. The left auricle and ventricle usually are relatively small. Even in those cases complicated by mitral stenosis there may be no hypertrophy or dilatation of the left auricle because the septal defect relieves the pressure in this auricle and places the burden on the right side of the heart. Dilatation and hypertrophy of the pulmonary artery are so great that this artery almost always is larger than the aorta.

Clinical Findings

Since the pressures within both auricles are practically equal there is no reason to believe that there is very much admixture of blood in spite of a defect in the septum. When the septal defect is complicated by mitral stenosis the pressure in the left auricle is higher than in the right, and there is an arterial to venous shunt. Therefore, in the absence of congestive failure, if any appreciable admixture of blood occurs it is from the arterial to the venous side, and cyanosis does not occur. However, if an additional burden suddenly is placed on the right side of the heart by increasing the pulmonary pressure, there frequently develops a so-called effort-cyanosis, because the hemodynamic mechanism temporarily is changed, causing a shunt from the venous to the arterial side. This congenital defect has been classified by Bard and Curtillet, and Abbott as "cyanose tardive," because permanent cyanosis is present only in the very late stages of the disease, when cardiac decompensation has supervened, causing increased pressure in the right auricle and therefore a right to left shunt of the blood. Approximately a third of the blood must be shunted from the venous to the arterial side before cyanosis is produced. Clubbing rarely is observed in cases of uncomplicated interauricular septal defect. A deformity of the left side of the thorax is usually present. Tausig, Harvey, and Follis spoke of the characteristic appearance of these patients, who have delicate, semi-translucent skin, and are of slender build with light bony structure; this so-called gracile habitus was not present in our cases.

Thrills may or may not be observed. When present they may be systolic or diastolic and usually are felt in the pulmonic region. Murmurs are also inconstant and variable. The most frequent finding is a systolic murmur that may simulate closely the murmur associated with interventricular septal defects, but it is not so constant, is usually higher, and not so intense. This systolic murmur usually is heard best in the second or third interspace just to the left of the sternum. In the absence of congestive failure the pulmonic second sound is louder than the aortic, but this sign is of no value in those cases complicated by mitral stenosis. Because of the hypertrophy and dilatation of the right auricle and ventricle, which causes a counter-clockwise rotation of the organ, the heart clini-

cally is enlarged both to the right and to the left of the sternum. Pulsation of the liver and of the cervical veins frequently is observed, particularly when the condition is complicated by a relative tricuspid insufficiency.

The electrocardiogram usually shows a right ventricular preponderance and high P waves. According to Graybiel and White the most pronounced degree of right ventricular preponderance is observed in three conditions: congenital dextrocardia, auricular septal defect, and the tetralogy of Fallot. In contrast to other types of congenital heart disease in which auricular fibrillation occurs infrequently, this arrhythmia very commonly is observed in cases of interauricular septal defect.

The only constant and reliable antemortem findings are those elicited by roentgenographic and roentgenoscopic examinations which reveal an enlarged, globular heart (most of the enlargement being in the right auricle and right ventricle), a very small aortic knob, a greatly enlarged pulmonary arch, and wide hilar shadows that frequently pulsate. Occasionally these enlarged hilar vessels are misdiagnosed tuberculosis, aneurysm, or tumor. Cramer and Frommel, and Lutembacher expressed the belief that the typical "cœur en sabot" configuration frequently is seen. This contour, however, is not present in uncomplicated cases.

Complications

In 75 per cent of the cases of interauricular septal defect reviewed by Roesler, valvular lesions were observed. In 68 per cent of the twenty-two cases reviewed by one of us (Tinney) there were chronic valvular lesions, 50 per cent of which were mitral stenosis. There is a much higher incidence of chronic valvular disease in association with this congenital septal defect than in association with any other type of congenital cardiovascular malformation. There is no good explanation for the fact that this defect is the only congenital cardiovascular lesion occurring commonly with mitral stenosis, an association frequently referred to as "Lutembacher's disease." This combination of lesions, however, had been described by many observers prior to Lutembacher's comprehensive study of the subject in 1916. Martineau,¹⁴ in 1865, mentioned the first case of interauricular septal defect associated with mitral stenosis. This study was followed by

many similar observations by other French authors, and in 1915, Abbott described two cases of interauricular septal defect, one of which was complicated by mitral stenosis.

Roesler was able to find only one case of chronic pericardial disease in his series and felt that this complication rarely occurred. Since Roesler's review there have been three cases reported that were complicated by chronic pericarditis, and Bedford, Papp, and Parkinson recently expressed the belief that "adhesive pericarditis" frequently is found in association with interauricular septal defects, but they did not explain what they meant by this term.

In contrast to the frequency of subacute bacterial endocarditis in association with other types of congenital heart disease, this complication rarely is found in cases of interauricular septal defect. Roesler, Taussig, Harvey, and Follis, and Joly denied its existence in association with this anomaly. In 1906 Griffith reported a case of this type in which vegetations were confined to the pulmonic and tricuspid valves. Jacobius and Moore mentioned the only reported case in which vegetations were localized to the septal defect and the mitral valve. In one of the cases reported by Bedford, Papp, and Parkinson the vegetations were found in the left auricle but involved neither the defect nor the mitral valve. For this reason our second case is of particular interest, because it is the second case to be reported in which the vegetations involved the septal defect.

The frequency of auricular fibrillation in cases of this congenital malformation in contrast to its rarity in cases of other congenital cardiovascular anomalies has already been mentioned. This frequency can possibly be explained by the high incidence of chronic valvular lesions, particularly mitral stenosis. Bedford, Papp, and Parkinson were unable to find any report of auricular fibrillation in association with uncomplicated interauricular septal defect among persons less than fifty years of age. One of us (Tinney) reported an uncomplicated case of this defect in which auricular flutter was present; the patient was forty-seven years of age.

Death fairly frequently occurs in cases of this type as the result of pulmonary infections, pulmonary emboli, or cardiac decompensation. When cardiac decompensation occurs it is due to failure of the right ventricle and is characterized by an

enlarged pulsating liver, engorged cervical veins, peripheral edema, ascites and late cyanosis. Pulmonary congestion and dyspnea are not conspicuous until the terminal stages.

Prognosis

It is difficult to say very much about the prognosis of interauricular septal defect *per se*, since approximately 75 per cent of all cases are complicated by chronic valvular lesions. Roesler divided his series of cases into two groups and observed that there was practically no difference in prognosis between the uncomplicated cases and those cases in which the defect was associated with chronic valvular lesions. Roesler noted that the average age of all the patients was thirty-six years or more; in twenty-four cases reviewed by one of us (Tinney) the average age of the patients was thirty-seven years. Pepper and Horack described a patient who died at the age of seventy-seven years; they believed this patient to be the oldest ever described in the medical literature, but Tarnower and Woodruff previously had written about a patient aged seventy-seven years. The average age of our four patients is fifty years; the youngest patient is thirty-six years old.

Summary

Four cases of interauricular septal defect have been presented. Two of these cases were complicated by mitral stenosis. One of them, the second such case ever reported, was complicated by subacute bacterial endocarditis, with vegetations involving the septal defect.

Aside from the septal defect the characteristic pathologic features are marked hypertrophy and dilatation of the right auricle, the right ventricle, and the pulmonary artery. The left auricle, the left ventricle, and the aorta are relatively small.

The most important and reliable clinical findings in the presence of interauricular septal de-

fect are those elicited by roentgenographic and roentgenoscopic examinations which reveal an enlarged, globular heart (most of the enlargement being in the right auricle and right ventricle), a very small aortic knob, a greatly enlarged pulmonary arch, and wide hilar shadows that frequently pulsate.

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HEAT-RESISTANT BUTTER DEVELOPED BY ARMY

A new "butter" developed by the Army Quartermaster Corps can be shipped without refrigeration and will resist temperatures up to 110 degrees Fahrenheit. Ten thousand pounds have already been shipped to U. S. troops overseas.

Named "Carter spread" after its inventor, Lt. Col. Robert F. Carter of the Quartermaster Corps, the new butter consists of dairy butter fortified with hydrogenated cotton seed oil flakes to raise its melting point. Quartermaster Corps officers say it still tastes like butter.—*Science News Letter*, April 25, 1942.

CLINICAL-PATHOLOGICAL CONFERENCE

◆ MINNEAPOLIS GENERAL HOSPITAL ◆

Frank C. Andrus, Pathologist

Presentation of a Case

DR. F. MOOSNICK: The case is that of a fifty-nine-year-old white male who was admitted to the hospital for the first time on December 10, 1941, complaining of back pain, weakness, and weight loss. He dated the onset of his symptoms to an attack in the fall, some three months before. He had the typical findings of an upper respiratory infection with wheezes in his chest, coughing, fever, and chills. He was confined to bed for a short while at that time. After the acute illness was over, he retained a chronic cough which was usually nonproductive, although he had expectorated slightly purulent sputum at times. He also complained of back pain and lumbar pain on the right which did not radiate but was dull and constant in character. The pain was increased by walking and moving. From the time of the onset of the attack in the fall, he had noted profound weakness to such a degree that he was unable to do any work and soon had to give up his usual occupation. It might be added that in his occupation as a painter he had come in contact with many kinds of paints and had not been overly careful in using or mixing them. Since the onset, although he noted no anorexia, he was unable to tolerate foods and lost 20 to 25 pounds in weight. His past history was not remarkable. He had undergone appendectomy some years ago. He had now a hernia at the site of the old incision. The family history was noncontributory. His father and mother were long-lived individuals, his father dying of heart trouble at seventy years and his mother at a similar age of Parkinsonism.

Physical examination revealed a temperature of 98.2 degrees, pulse 96 per minute, respirations 20 per minute, and blood pressure 104/70. He was well developed and well nourished and exhibited no evidence of the weight loss of which he had mentioned. The head, neck, and abdomen were negative. There was some tenderness over both sacro-iliac joints especially on the right side. Examination of the chest revealed wheezes and sibilant râles over the left upper lobe which disappeared after a few coughing spells.

Laboratory Data: The hemoglobin was 81 per cent, erythrocyte count 4,200,000, and leukocyte count 9,050 with a normal distribution. Blood morphology studies with particular reference to basophilic stippling were done, but were negative. The tests for syphilis were negative. The urine was negative. The sputum was examined for acid fast bacilli, but none were found. One of the specimens contained streaks of blood, and all were positive for occult blood. Stool examinations, however, were negative. X-ray studies had been done in the Out-Patient Department immediately before ad-

mission and had revealed some hypertrophic changes in the lumbar spine which were regarded to be sufficient to account for his low back pain. In addition, the chest film showed an increased density in the left upper lobe which the roentgenologist interpreted as atelectasis or some type of inflammatory reaction. The remainder of the lung fields were negative. X-rays two weeks later showed some clearing of the process along the lateral border of the heart. The impression was that the patient had some kind of an acute inflammatory process which was resolving. Although there was some clearing, density persisted. Bronchoscopy, done during the hospital admission, was reported as negative. His further course was uneventful. He coughed very little bringing up about one fourth a cup of mucoid sputum each day. The back pain cleared with bed rest and he was discharged.

He was followed in the clinic. He gained 25 pounds in weight and felt well. The back pain cleared but he did not feel well enough to go back to work at any time. His chest was x-rayed again but the findings were not particularly impressive at that time. He continued along this course until the middle of this year at which time he had a sudden onset of a series of chills followed by bouts of fever. These attacks came on in the evening, usually occurred daily, and were followed by fevers up to 103 degrees. He had no sweats and his temperature dropped by the next morning. With this he had severe malaise and marked aching in his muscles. His cough which he had complained of at first and which had cleared, returned and was now dry and hacking. Because of the persistence of these complaints, he was readmitted to the hospital in July, 1942.

Physical examination now revealed a temperature of 101 degrees, pulse 80 per minute, respirations 20 per minute, and blood pressure 102/66. There was some evidence of weight loss and the patient appeared dehydrated. Physical examination was negative except for the chest findings. There was an impaired percussion note over the left upper lobe and to a certain degree at the left base. The breath sounds were increased over most of the left chest with increase in bronchial elements and prolonged respirations. In addition there were crackling râles at the left base posteriorly which cleared slightly on deep breathing, but which did not clear entirely.

Laboratory data: The hemoglobin was 81 per cent and the leukocyte count 5,950. The urine was essentially negative and the blood culture yielded no growth.

Agglutination tests were done but were all negative. Four sputum specimens were again examined for tubercle bacilli, but none were found. The sedimentation rate was 109 mm. in one hour. An electrocardiographic tracing was negative.

The patient was then bronchoscoped and a small tumor mass was found in the bronchus leading to the left lower lobe.

Clinical Diagnosis: Bronchogenic carcinoma.

DR. FRANK ANDRUS: We will now project a slide of the biopsy. Here we see squamous epithelium which is quite undifferentiated, does not have a clear lower border and appears to be invading. As you remember there are three main histologic types of bronchogenic carcinoma. There is the squamous type which is said to be more apt to give rise to ulceration of the bronchus and to formation of a lung abscess. Then there is the small cell or undifferentiated carcinoma. This latter type usually arises near the hilus of the lung and metastasizes quite readily to the lymph nodes. The third kind is the adenocarcinoma. These varied histologic types give rise to different clinical forms. One of them is the picture we are seeing with infiltration at the hilus of the lung. Another type produces a massive consolidation of one lobe and appears much like a pneumonia on x-ray and grossly. Another type produces multiple miliary lesions scattered throughout both lungs; and still another occurs near the periphery of the lung and often gives massive infiltration to the pleura.

I think that most of us now regard that the so-called "pleural endotheliomas" are actually bronchogenic carcinomas. A careful history is of utmost importance in the diagnosis of bronchogenic carcinoma. Whenever a pleural effusion, empyema, or lung abscess is seen which appears insidiously, and not as a complication of pneumonia, a bronchogenic carcinoma should be suspected especially when the patient is in the older age groups. Occasionally the patient gives a history of repeated attacks of pneumonia which actually represent episodes of pulmonary atelectasis. When we keep these things in mind, we will have a much earlier diagnosis of bronchogenic carcinoma.

DR. PEPPARD: In regard to the clinical story of bronchogenic carcinoma, what Dr. Andrus just said about the various types accounts for the many differences in the clinical picture and x-ray findings. Carcinomas will stimulate almost any kind of pulmonary disease at times. We are now a little more alert to bronchogenic carcinoma and not quite so apt to pass it up because of not thinking about it. Very often the prominent symptoms of which the patient complains are that of an associated lesion, and one of the common ones is that of atelectasis. Pleural involvement is significant. I went through a series of cases here at this hospital and, while I was aware of its importance, I was rather surprised to see the frequency in which diagnosis was made by the examination of blocks of tissue made from the sediment of the pleural fluid. Several patients had more than one bronchoscopic examination without the diagnosis being established.

DR. ANDRUS: Even in the best hands, bronchoscopic biopsy is positive for tumor in only about one-half of proven cases.

There are other types of bronchogenic tumors that we might mention. One is the type described by Pancoast where the primary tumor is in the superior pulmonary sulcus which then involves the cervical sympathetic and gives rise to a Horner's syndrome and which may invade the brachial plexus to give atrophy to the upper extremity on that side. Another tumor is that seen most often in young individuals, and is that of a benign adenoma of the bronchus which some people call Grade I carcinoma. These produce obstruction and intermittent atelectasis which is sometimes complicated by lung abscess. There are other rare bronchial tumors. On one occasion the bronchoscopist cut out a piece of cartilage and we thought that he was taking out a piece of the normal bronchus cartilage but it turned out that the patient had a primary chondroma of the bronchus. Another tumor was a spread from the hypernephroma which metastasized to the lymphoid tissue underlying the mucosa, producing a polypoid growth which projected into the bronchus. Another one was a metastasis from a gelatinous carcinoma of the colon which had previously been resected. This also produced obstruction to the bronchus and atelectasis.

DR. PEPPARD: From a series of 7,685 autopsies at the Cleveland City Hospital the lung was the second most frequent site of origin for primary malignancy, being preceded only by the stomach. In a series of 6,800 from Cook County Hospital, pulmonary carcinoma was third, stomach being the first and the intestines the second. Locally here at the Minneapolis General Hospital from 1935 to 1939 there were 20 cases out of 63,936 admissions, one bronchogenic carcinoma to every 3,129 admissions. At St. Mary's Hospital, Minneapolis, there were 14 cases out of 26,301 admissions, a ratio of almost double over that here, 1 to 1,878. At Glen Lake Sanatorium from 1916 to 1939 there were 17 cases out of 6,343 admissions making a ratio of 1 to 373 cases. From 1935 to 1939 Asbury Hospital, Minneapolis, had 17,424 admissions with 11 cases, a ratio of 1 to 1,584. This gives us an idea of the frequency of primary pulmonary cancer.

A STUDENT: How often do these tumors metastasize to the brain?

DR. ANDRUS: Quite often. Tumors of the lung go to the brain more commonly than any other tumors. The reason for this is apparently because most tumors give rise to emboli which have to go through the lung to get out into the greater circulation, whereas a tumor in the lung does not have to go through the pulmonary circulation but goes directly into the greater circulation. The lung is perhaps the most common source of metastatic brain tumors. It is so common a source that experienced neuro-surgeons routinely examine the lungs when a patient presents himself with a brain tumor.

HISTORY OF MEDICINE IN MINNESOTA

HISTORY OF THE MINNESOTA STATE MEDICAL SOCIETY

By ARTHUR S. HAMILTON, M.D.

Minneapolis, Minnesota

(Continued from July Issue.)

Thirtieth Annual Meeting

The thirtieth annual meeting of the Minnesota State Medical Society was held in Saint Paul, June 15, 16, and 17, 1898, the president, Dr. John F. Fulton, presiding.

The various routine matters necessary were taken care of with some differences of opinion and considerable time was thus consumed. The committee on diphtheria antitoxin which was continued from the previous meeting reported that "Antitoxin is so well recognized and settled as a necessary factor in the treatment of diphtheria . . . that detailed information would be valueless . . . Perhaps no remedy ever came to trial that stood the test and became standard so soon. . . . The value of the remedy is almost without parallel in the annals of medicine."

Thirty new members were admitted to the Society and various committees were appointed to preside over the sections.

The committee, appointed at the previous meeting to see whether something could be done to improve the laws relating to the office of coroner and those relating to expert medical testimony, made a lengthy report. They presented the bills regarding these laws which were introduced in the last legislative session at their request. Both bills failed but the committee stated that they were not discouraged and believed continued efforts should be made to reform the laws relating to these matters.

The Spanish-American War was in progress at this time and the remission of dues of members of the Society who were in the army was passed, as well as those who had paid dues for twenty-five years.

Dr. Fulton, in his presidential address, outlined the advances being made in medical education and praised the work that had been done in elevating the requirements before admitting a physician to practice his profession. He noted also the fact that these advanced requirements would soon eliminate the commercial and poorly equipped medical schools.

Forty-seven papers were read at this meeting, a number of these being case reports. Most of these latter were by younger men. Ophthalmology, Otology, and Laryngology which hitherto had been part of the Section on Surgery now existed as a separate section. Surgical papers were not as numerous as they had been in the past but the question of appendicitis still raged, particularly as to the time for operation. The Gynecology Section presented a symposium on extra-uterine pregnancy.

The three longest and most extensive papers presented were those on "Medical Education" by Dr. L. M. Crafts, "Medical Expert Testimony" by Dr. J. H. Dunn and "Artificial Immunity" by Dr. D. O. Thomas.

Many papers on laboratory methods of diagnosis were presented. It was about this time that laboratory work of this kind was beginning to be used in Minne-

sota, such as blood examinations, microscopic examination of the urine, the Widal reaction and the Diazo reaction.

All the papers were adequately discussed but at this meeting those who previously had prepared papers apparently stepped aside and gave others the opportunity to express their views.

Dr. F. A. Dunsmoor of Minneapolis was elected as the succeeding president.

Thirty-first Annual Meeting

The thirty-first annual meeting of the Minnesota State Medical Society was held in Minneapolis June 21, 22, and 23, 1899, Dr. F. A. Dunsmoor presiding.

The minutes of this meeting are more extensive than any of the previous sessions due particularly to relief of the physicians who suffered losses in the cyclone which destroyed New Richmond, Wisconsin, and the exertions of the osteopathic physicians to influence the legislature to make them eligible to practice their cult as legal practitioners of medicine.

Doctor Dunsmoor, in his presidential address, stressed the necessity of the profession to follow the ideals of professional ethics, to stand united against all chicanery and undignified practices, and to keep abreast of the latest advances in medical knowledge, both clinical and public hygiene.

The Society was now a large organization and the difficulty of providing time for the presentation of all papers offered presented difficulties. It was necessary to limit the time allotted to each speaker to overcome this difficulty. In all, forty-seven new members were admitted.

Because of the time limit placed on the reading of papers more than usual were presented, fifty-one in all. These were divided as follows: Medicine, thirteen; Neurology, four; Surgery, sixteen; Ophthalmology, Otology, and Laryngology, five; Gynecology, five; Obstetrics, six.

The papers presented by outsiders by invitation were delivered by Dr. John V. Shoemaker of Philadelphia on "The Psychological and Medical Treatment of Insomnia," and by Dr. Franklin H. Martin of Chicago on "Retroversion of the Uterus." These were well received and discussed.

Dr. T. C. Clark reported on "Observations on the Medical Service of the Late War." Many inadequate methods of procedure had been started and it was hoped that abuses then prevalent would be corrected.

Dr. George D. Head presented an admirable paper on "Tuberculin as a Diagnostic Agent" and Dr. Frederic Leavitt read an excellent paper on "Smallpox," illustrated with photographs.

Many other excellent and well-presented papers were submitted and caused considerable discussion. It is of interest to note that many of the best were short, the authors avoiding elaboration of nonessential verbiage.

Thirty-second Annual Meeting

The thirty-second annual meeting of the Minnesota State Medical Society was held in Duluth June 27, 28, and 29, 1900, Dr. Walter Courtney of Brainerd presiding.

The routine matters of the meeting were quickly attended to. The only thing of interest was a motion, which was carried, that an effort be made to prevent the paying and receiving of commissions on cases referred by one practitioner to another. There was no debate on this motion.

As the American Medical Association was to meet in Saint Paul the next year a committee was appointed to arrange for the succeeding meeting, as some changes might be necessary.

Doctor Courtney, in his presidential address, reviewed the progress of medicine

during the past few years of the century and in addition mentioned some of the recent innovations in medical practice which he thought were objectionable in medical education, medical expert testimony, legislation, advertising and commissions.

Fifty-one new members were admitted to the society at this session, being the largest number admitted in one year. The transactions of this meeting were printed in octavo, smaller in size than those previously published.

Only twenty-seven papers were presented at this meeting. Apparently the Program Committee believed that a few well prepared papers were preferable to a larger number of smaller papers and case reports.

Dr. George D. Head, chairman of the Medical Section, presented "The Value of the Newer Signs and Procedures in Diagnosis." Dr. J. W. Bell presented "The Early Diagnosis of Pulmonary Tuberculosis." These were lengthy papers and were well presented and thoroughly discussed.

The State Board of Health presented two papers, one by Dr. Reynolds on "State Work with Infectious Diseases of Animals," and "Rabies in Minnesota" by Dr. L. F. Wesbrook.

In the Surgical Section, Dr. J. H. Dunn discussed "Penetrating Wounds of the Chest." Dr. Andrew J. Coey of Chicago, the only outside visitor, discussed "Blood Count in Surgical Diagnosis." This was a good paper but was much the same as that presented in 1899 by Doctor Head. Dr. C. H. Mayo presented a paper on "Varicose Veins," and Dr. C. A. Wheaton spoke on "Lymph Nodes as a Factor in Diagnosis." These papers were adequately presented and excited considerable discussion. For the first time the transactions contain an index.

We have now reached the end of the nineteenth century where our history for the present ceases. On reading the papers presented during the preceding thirty years the progress of medicine is well shown. It is to be regretted that practically all of those prominent in medicine in Minnesota during these years have passed beyond, but their influence on Minnesota medicine is still a pleasant memory and their contributions are well remembered today.

OFFICERS OF THE MINNESOTA STATE MEDICAL SOCIETY

1869-1900

<i>Year</i>	<i>President</i>	<i>Secretary</i>	<i>Treasurer</i>
1869-1870	Samuel Willie	A. Wharton	S. B. Sheardown
1870-1871	Samuel Willie	C. P. Adams	S. B. Sheardown
1871-1872	Franklin Staples	A. E. Senkler	S. B. Sheardown
1872-1873	W. W. Mayo	W. F. Hutchinson	S. B. Sheardown
1873-1874	W. W. Sweeney	H. C. Hand	S. B. Sheardown
1874-1875	N. B. Hill	J. E. Bowers	S. B. Sheardown
1875-1876	J. H. Stewart	A. W. Stinchfield	S. B. Sheardown
1876-1877	F. H. Milligan	A. H. Steen	S. B. Sheardown
1877-1878	Otis Ayer	E. Phillips	S. B. Sheardown
1878-1879	J. E. Finch	R. L. Moore	S. B. Sheardown
1879-1880	A. C. Wedge	R. L. Moore	S. B. Sheardown
1880-1881	A. J. Stone	R. L. Moore	S. B. Sheardown
1881-1882	C. H. Hewitt	J. F. Force	S. B. Sheardown
1882-1883	P. H. Millard	W. A. Jones	S. B. Sheardown
1883-1884	W. L. Lincoln	C. E. Atkinson	S. B. Sheardown
1884-1885	J. B. McGaughey	A. F. Ritchie	S. B. Sheardown

HISTORY OF MEDICINE IN MINNESOTA

1885-1886	E. J. Davis	W. L. Beebe	S. B. Sheardown
1886-1887	H. H. Kimball	J. F. Force	S. B. Sheardown
1887-1888	C. F. McComb	J. B. Simpson	S. B. Sheardown
1888-1889	C. G. Wheaton	C. B. Witherle†	S. B. Sheardown
1889-1890	J. H. Dunn	C. B. Witherle	C. B. Witherle*
1890-1891	W. L. Beebe	C. B. Witherle	R. J. Hill
1891-1892	Park Ritchie	C. B. Witherle	R. J. Hill
1892-1893	A. W. Abbott	C. B. Witherle	R. J. Hill
1893-1894	W. J. Mayo	C. B. Witherle	R. J. Hill
1894-1895	Justus Ohage	C. B. Witherle	R. J. Hill
1895-1896	Frank Allport	Ignatius Donnelly, Jr.	R. J. Hill
1896-1897	W. D. Flinn	Ignatius Donnelly, Jr.	R. J. Hill
1897-1898	J. F. Fulton	Ignatius Donnelly, Jr.	R. J. Hill
1898-1899	F. A. Dunsmoor	William Davis	R. J. Hill
1899-1900	Walter Courtney	William Davis	R. J. Hill
1900-1901	William Davis	Thomas McDavitt	R. J. Hill

†The office of Corresponding Secretary was discontinued in 1889 and was replaced by the office of Recording Secretary.

*Dr. Witherle completed the unexpired term of Dr. Sheardown who died while in office.

HOSPITAL SERVICE ENROLLMENT

A total of one-half million hospital service subscribers will be reached by fall, in accordance with an announcement made at a recent meeting by James McNee, superintendent of St. Luke's Hospital, Duluth, and president of the Minnesota Hospital Service Association.

"The Minnesota Hospital Service Association, which is observing its ninth anniversary this year," said Mr. McNee, "expects to reach an enrollment of one-half million subscribers by fall.

"We begin our ninth year with a record payment of \$5,773,499.00 in hospital service for our subscribers. Since 1933, 190,164 subscribers have been hospitalized.

"In 1942, alone, it is estimated that over \$1,000,000.00 will be paid to hospitals for subscriber hospitalizations. This means that 83 per cent of this year's income will be returned to the subscribers in the form of hospital service," he stated.

"An interesting fact is that 70 per cent of the Minnesota Hospital Service subscribers in the Twin Cities area use more expensive accommodations than the three or four-bed room accommodations. This indicates that where a hospital service contract relieves expense, people prefer using higher priced accommodations," concluded Mr. McNee.

At the same meeting, Arthur M. Calvin, executive director of the Association, made a comparison of the Plans present size with its size in 1933. He said, "At the end of our first year of operation, there were but 2,000 subscribers enrolled and there were only seven

contracting hospitals. These hospitals were all located in Saint Paul. Today, we have 483,000 subscribers and 102 hospitals in Minnesota are affiliated with the Plan.

"With the recent enrollment of the Twin City Ordnance Plant and the Gopher Ordnance Plant Area Engineers, all the defense plants in the Twin Cities have hospital service groups," said Mr. Calvin.

"Our Plan, with seventy-one other non-profit Blue Cross Plans in the nation, forms a vital part of the national defense program, and has recently been endorsed by the Office of Defense Health and Welfare Services.

"It is because of the wholehearted coöperation of civic leaders, employers, employees, hospitals and the medical profession that the Blue Cross Plan has become an important part of community life in Minnesota.

"Because of the unselfish interest of the press and radio stations in the state, thousands of persons in Minnesota have become acquainted with our non-profit Blue Cross Plan for hospital care," Mr. Calvin concluded.

The purpose of the Minnesota Hospital Service Association is to provide hospital service to groups of employed persons. However, subscribers who enter the armed forces may continue their contracts for the benefit of their dependents at a reduced rate. If the subscriber has no dependents, he may suspend his contract while he is in service. When he returns to civilian life, he may reinstate his contract without loss of benefits.

President's Letter

DUES DURING THE WAR EMERGENCY

TWO years ago the Council recognized that physicians in service should be maintained in active membership and announced the policy of encouraging local or component societies to carry the dues of their members who were in active service. This was done in almost all of the societies. Later it became evident that some of the larger societies could not do this and properly maintain their necessary local activities. A year ago, therefore, the House of Delegates passed a resolution to the effect that the State Association should arrange for the payment of dues of those in service with the rank of Captain or below in the Army and Lieutenant Commander or below in the Navy, if so requested by the member concerned and the responsible officers of his local society. It appeared that even this plan would be less successful as more physicians were called into service, as the load became heavier, and as some societies were called on to make very large contributions in proportion to their incomes. Consequently, at the last session of the House of Delegates, after extended discussion it was decided that, in fairness to all physicians in the state, some method of equitable distribution of the financial load should be formulated. A temporary contribution, effective in 1943, of five dollars a year during the war emergency was proposed to help pay the dues of all medical officers. And I think I am correct in stating that this proposition was finally supported unanimously.

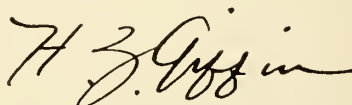
I am sure the members of the Association will accept without hesitation the decision of the House of Delegates to increase the dues for the period of the war emergency, particularly if they understand the necessity of such a decision and the fact that it was arrived at only after full and free discussion and mature consideration. It should be clearly understood that the additional contribution is temporary, and for the period of the war emergency only, which ordinarily means for the duration of war and for the period of adjustment after peace has been declared.

Preceding the adoption of the proposal, three questions especially were discussed at length: further economy in administration, possible curtailment in the activities of the Association, and the use of our reserve fund. Economy in administration has been practiced for years. As former chairman of the Finance Committee I am familiar with this practice. The unification of all administrative activities in one office under a full-time staff of exceptional ability led to a consistent annual saving. Moreover, few of the expenses of officers and committeemen are charged to the Association. Economy has been the watchword since the depression of 1932 in so far as it was consistent with the responsibilities of the Association to its members and to the public.

Curtailment in the activities of the Association can be accomplished in only a few minor fields. In general we must maintain our activities to fulfill our responsibilities. In fact, in certain fields our activities must be expanded to meet wartime demands. For instance, a very considerable expense has had to be assumed in connection with the Procurement and Assignment Service. Campaigns for public health and welfare must be actively maintained in order that epidemics may be prevented and as firm a foundation as possible may exist for recovery after peace has been restored.

Some of our reserve fund may have to be used. It is not large for such an important organization, about \$44,000. If 900 physicians are in service in 1943 our income will be reduced by \$13,500. Assuming a membership of 2,600, there will be 1,700 remaining who pay dues. The additional amount received from these 1,700 will be \$8,500 or \$5,000 less than we now receive. Consequently, even with the additional dues it will be necessary to economize where we can and to curtail our activities where it is possible. It may be advisable to utilize some of our reserve fund, but I sincerely hope that this will not be so. An organization of the size and importance of the Minnesota State Medical Association should by all financial criteria have a much larger reserve fund than we now possess.

I have discussed this subject frankly with you because every member is entitled to know the exact basis for the decision of the House of Delegates. Obviously all details cannot be presented in this short letter. If there are other questions in your mind on the subject I shall hold it an honor to correspond with you personally.



President, Minnesota State Medical Association

EDITORIAL

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BUSINESS MANAGER
J. R. BRUCE

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THE NATIONAL PHYSICIANS' COMMITTEE

NEXT November the National Physicians' Committee will have been three years in existence. It is time to take stock and ask what is its record of accomplishment. Why, for instance, does the American Medical Association give this Committee its unqualified indorsement? For in the resolutions adopted at the recent Atlantic City Convention of the AMA were two noteworthy statements:

I. BE IT RESOLVED that we register our approval of the activities of the National Physicians' Committee for the Extension of Medical Service, commend the Board of Trustees and the Management of this institution for the efforts they have made to enlighten

the general public in connection with American Medicine's methods, progress and achievements, and in pointing out that the public has a vital interest in the final results.

II. BE IT RESOLVED that we, the House of Delegates of the American Medical Association, place ourselves officially on record as recognizing our responsibility for making the utmost effort to preserve the elements of independence and freedom of action that will make possible the easy reentry of physicians to civilian practice. To this end we recommend that a definite part of each program of every component Medical Society be devoted to a reconsideration of the traditions, the standards, the freedoms, the effects of the absence of restraints and outside controls which have contributed so materially to American Medicine's unequalled progress and vast achievements.

This second resolution indicates the necessity for the fight to maintain the traditions and principles of American Medicine which have made our country the healthiest in the world. It is this fight that the National Physicians' Committee has been waging. In these two and a half years, thousands of educational pamphlets which preached sound medicine and set forth the record of medicine in America have been broadcast over the country. About one hundred of the leading newspapers of the country carried a full-page advertisement of medical achievement. Two similar full-page statements appeared in the *Saturday Evening Post*, one coming out prior to the Republican National Convention, the other prior to the Democratic National Convention. At the present time there are being sent to over twelve thousand newspapers weekly releases of stories which help to educate the public in the principles of sound medical practice.

Such has been the work of the Committee. Now as to the results: Elimination of medical planks in the platforms of both Republican and Democratic Parties was due largely to the activities of the N.P.C. The same agency was partly responsible for the statement of the President of the United States at the dedication of the Government hospital at Bethesda, Maryland, upholding the preservation of American standards of medicine. Who can tell how far-reaching and powerful has been the influence of this campaign in public health?

During the past year the committee has made notable advances in forming supporting organizations in many states of the Union. As a result of this and with the backing of the two resolutions passed at the recent meeting of the House of Delegates of the American Medical Association, it is expected that the support of the activities of the N.P.C. will be greatly augmented. With increased funds N.P.C. is planning to enlarge its activities and make its influence felt even more prominently than in the past.

Is it worth your while to keep up the good work of the N.P.C.? Evidently Minnesota doctors have thought so. In the fiscal year just past, they contributed the largest sum given by the physicians of any state in the Union. Even Texas and Michigan trailed Minnesota. We believe that the work of this committee on a national scale is worthy of the continued support of the medical profession of the country.

The committee is making the following plans:

1. To issue a monthly Bulletin to all subsidiary organizations.
2. To engage the services of several men who will act as field men, visiting various organizations in the country and helping them in increased activities.
3. Among various other enterprises it is considering the development of legislative activities to safeguard the independence and freedom of American Medicine in the post-war reconstruction period.

It has in mind following some of the activities carried on by the Committee on Legislation in Minnesota, which are recognized as being pre-eminent in work of this kind. It also is planning an increased radio program during the fall and winter.

In order to do this, it will be necessary for those who have subscribed to the National Physicians' Committee to continue their active support. Otherwise, of course, this sorely needed agency will be unable to function. It would be greatly appreciated if all who have subscribed in Minnesota during the past year would repeat their subscriptions this year and if the men who have not subscribed would realize the great need of their active support. Plans are being made to carry on the campaign for additional subscriptions again this fall. In the meantime, if you

find it possible to subscribe now and would care to do so, make your check payable to the National Physicians' Committee, and send it to either one of the undersigned, who will then forward it to headquarters in Chicago, which in turn will send acknowledgment direct to you.

WILLIAM F. BRAASCH, M.D.

Secretary and

Member, Board of Trustees.

F. J. SAVAGE, M.D.

Chairman, Minnesota Division,
National Physicians' Committee.

THE DOCTOR IN SERVICE

WHEN war descended precipitately on our peace-loving people there was left no alternative but to assemble a huge army for our country's defense.

We know that modern armies are made up of men and machines. An adequate proportion of doctors must of necessity be with the men. Doctors are just as necessary to our own army as are doctors in the German or the Japanese or any other army. There is the same devotion to professional duty on the part of medical men, of any race, in all armies at war today; the art of healing knows no nationality.

Apathy on the part of the civilian physician toward assuming military duty is not unnatural. His training has not been with a military career in view. His life has been geared to a plan of practice in a day of peaceful pursuits. But after all, is it so very different? He relieves headaches, constipation, sore throats or appendicitis and takes these things as a matter of course in his daily round at home. But we must not forget that the boys in uniform have all these. And, too, the boy in uniform may be homesick or "jittery" or uncertain or confused about his military life, so new to him. He may even have fears he would disclose only to the doctor in his outfit. It is true that the man who has embraced the profession of medicine will always be a "doctor" in a certain personal sense to those outside the profession, even to the man in uniform. The patient who says, "I feel better, doctor, now that I have talked to you," may just as well be a man in uniform, and every physician knows how good that sounds to him.

A doctor's desire to serve with the troops is not all patriotism; it is more than that. It is his innate desire to render the same sort of service

to his fellow men in service that he has at home. The company, the battalion or other unit to which he is attached may be regarded as his village, town or city practice. He is the guardian of the health and well-being of these men. If he does it well and conscientiously they will render him the same loyalty and gratitude he received at home. The need of the troops for attending physicians is great. We hope that need will be rapidly met by physicians applying for commissions.

—A. N. C.

MORE ABOUT ENLISTMENT

THE lagging in voluntary enlistment of physicians in the Medical Corps of the army has been due to some misunderstanding as to the method of procedure. Some physicians who filled out certain official forms wherein they specified certain preferences in the various services had the impression they were applying for commissions. The lack of functioning on the part of the Procurement and Assignment Committees in designating who of the groups of physicians in the various county societies certified as nonessential to civilian practice should enter the service first still left the decision to each individual physician. The subject has been clarified since the State Medical Meeting in Duluth in June.

At that meeting the State Delegates agreed that all physicians under forty-five years of age should hold themselves in readiness to apply for commissions in the armed forces as the need should arise. They also agreed that for the present and until the emergency demands otherwise only those under thirty-seven years of age, with a few exceptions, would be called upon to apply for commissions.

In our last issue we suggested the advisability of establishing quotas for states and component county societies as desirable in determining how many physicians should be obtained from the various districts of the state. Apparently this has been done. While Minnesota is still some 400 short of its quota, it is not deemed advisable to obtain this many enlistments at once. Some 250 letters were sent out by the chairman of the State Procurement and Assignment Committee under date of July 14, to physicians under the age of approximately thirty-seven, who had been certified by the various county Procurement and Assign-

ment Committees, informing them that they had been selected for military service and suggesting that they apply for commissions as soon as possible. The names of these available physicians have been submitted to the Selective Service and Medical Recruiting Boards. The draft numbers of these men have already been called and the only reason these individuals have not already been called is because action of the Procurement and Assignment Committee has been awaited. This action was taken in order that the civilian population in certain districts need not suffer from lack of medical attention.

There need be no further cause for misunderstanding. These 250 men are those who the Committees on Procurement and Assignment feel should enlist. The decision no longer rests with the individual physician. Those who received this letter may feel assured that in the opinion of their confreres they can be dispensed with in civilian practice and it is proper for them to enlist. Doubtless the response will be satisfactory now that the atmosphere is cleared.

This war is no child's play. The armed forces need more doctors. The younger able-bodied doctors should be the first to enlist. Without a doubt those in the older age group of thirty-seven to forty-five also will be needed soon.

A doctor entering the army makes a sacrifice, financial and otherwise. The medical corps is no place for a conscientious objector, in spite of a recent assignment to the medical corps of a former prominent Hollywood star, who had declared himself a conscientious objector. The medical corps of the army and physicians in general should, and doubtless do, resent the implication. Admittedly a physician in the service is not likely to have as hazardous an assignment as a flying pilot or gunner, but upon enlisting he puts himself at the disposal of the Surgeon General as to where and how he shall serve. An enlistment in the Medical Corps is still proof of a physician's patriotism.

SELECTEES REJECTED BECAUSE OF TUBERCULOSIS

X-RAY examination of the lungs is a routine procedure for induction into the army and in the preemployment examinations for the Twin Cities Ordnance Plant. It is said that about 0.5 per cent of the many thousands who have so far been examined for induction into service in this

state have been turned down on account of pulmonary tuberculosis. Presumably this number includes arrested cases for they are not accepted into service.

This detection by x-ray of active or inactive cases of pulmonary tuberculosis in presumably healthy individuals affords an opportunity for the agencies, such as the State Board of Health and the Minnesota Public Health Association to contact these individuals, trace their sources of infection and follow their treatment.

With this purpose in view a meeting was called June 1, 1942, by the Minnesota Public Health Association and its two constituents, the Hennepin and Ramsey County Public Health Associations, for the discussion of the best method of procedure. In attendance were representatives of the State Board of Health, the Minneapolis and Saint Paul Boards of Health, the Medical Department of the Induction Center at Fort Snelling, the Medical Department of the Twin Cities Ordnance Plant, the State Rehabilitation Department of the Division of Social Welfare and the volunteer tuberculosis associations.

As a result of this conference it was arranged that those individuals with x-ray evidence of pulmonary tuberculosis encountered not only at the Fort, but at the plants at New Brighton and Rosemount will be reported not only to the State Board of Health, but to the Health Departments of the Twin Cities and presumably local health authorities in the rest of the state. Radiographs taken at the Fort are sent to local draft boards for the use of the rejected draftees and their private physicians.

In the interest of rehabilitation and the use of available manpower in the present emergency, it was brought out that many ordnance jobs which do not require much physical effort and with healthy atmospheric surroundings are ideal for those individuals with arrested pulmonary tuberculosis, providing periodical examinations are arranged for. This need not be done at public expense since ordnance employes can afford to pay for such examinations themselves. This arrangement is in their own interest as well as that of their fellow employes, and is already in effect in many industrial plants, where it works effectively.

With this evidence of coöperation on the part of army, ordnance and state and voluntary health organizations the wholesale examination of the

younger male population of the state may be made to aid the tuberculosis fight so that the downward trend in the mortality rate of this disease may continue during the coming years.

WAR SAVINGS BONDS

THE tempo of the nation's war effort has risen by leaps and bounds during the last several months. The battleline on which our American men are fighting extends to every continent. The supply lines are carrying tools of war in ever-increasing quantities from our shops and factories. The American spirit is geared to high pitch with the intent to hit full stride and get this business of war settled with Democracy the victor.

With the increasing intensity of effort comes also a pyramiding of cost. For the fiscal year 1943, the war program will require an estimated total of 70 billion dollars. Even with increased taxes, such revenues will fall far short of meeting the bill. Of the total war and nonwar costs of Government for this coming year, the Treasury Department will have to borrow some 52½ billion dollars on the basis of present estimates. To borrow in the best way possible is the goal.

Our fiscal program like our production line is directed toward the total war effort. The fiscal program, however, is designed not only to meet financial needs of the nation, but is concerned with broader economic requirements as well. Our national income has increased some 3 billion dollars a month over that of two years ago. The American public must defer the purchasing made possible by this increase until after the war, when the nation's productive plant is reconverted to meet consumer needs. That is one major reason why the Government has set the billion dollar a month quota for the purchase of War Savings Bonds.

The quota figure may seem a stringent demand since it calls for 10 per cent of all individual incomes, but this war can't be won by wishful thinking. And deferring one's spending until the post-war period is little in the line of actual sacrifice. The 10 per cent is not *given* to the Government. The money purchases securities upon which returns as high as 33⅓ per cent are paid when the bonds mature. Fulfilling our quota of bond purchases during each month as long as the war may last will go far in financing our war effort both adequately and beneficially to us all.

Tire, gasoline, and sugar rationing require adjustments in our everyday habits of living. It is no less necessary that the budgeting of dollars for War Bonds become a daily habit. Americans are fighting for total victory and we as a people are willing to invest in that victory. But this problem is no future problem—it must be met now by every American who receives wages and income.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

Minnesota State Medical Association

George Earl, M.D., Chairman

HOW AND WHEN

Current military needs for physicians—and how to fill them—superceded all else in the discussions of the delegates and officers of the Minnesota State Medical Association in their 89th annual session in Duluth.

The question at issue was not, shall we offer our services?—but how—and when—shall we offer them?

It was complicated by general misunderstanding of the function and scope of Procurement and Assignment and of the significance of the PAS classification “available,” as applied to physicians of military age.

When the heat of controversy had blown away all who participated agreed that the session had been stimulating and valuable, that misunderstandings had been cleared up and the way was open for Minnesota, already well in the forefront of the states, to complete its quota of medical officers for the army.

Misconceptions

Notable among misconceptions held by many of the older as well as younger members was this one to the effect that Procurement and Assignment committees should be expected to take into account family and financial considerations in classifying men as “available” or “not available.”

Family and financial considerations and physical condition are no part of the business of Procurement and Assignment committees. All such considerations belong to the individual and his Selective Service Board only. By regulation and special arrangement, the advice of the Procurement and Assignment Service is accepted by Selective Service Boards in one matter only—that of community need.

If a man is considered essential, by reason of the fact that he is alone in a community or he occupies a critical position on a hospital or teach-

ing staff, then the Procurement and Assignment Committee marks him unavailable and the Selective Service Board abides by that classification. If not, he is marked available and it is left to army medical examiners to pronounce upon physical condition and to Selective Service Boards to pass upon claims for dependency and other civilian obligations.

Recruiting Short-Cut

Another misunderstanding had its basis in Procurement and Assignment plans as originally published by the *Journal of the American Medical Association*. Many young men who have long since indicated on their questionnaires their willingness to serve with the armed forces were still waiting to be notified by Washington that they were needed. They did not understand that the Medical Recruiting Board had been set up as an emergency measure to expedite the original procedure and recruit the young men who were willing to serve immediately to meet the critical demands of the growing army.

The fact is, as army representatives pointed out in Duluth, that the recruiting methods of PAS from Washington, necessarily hampered by necessities for correspondence were too slow to meet the need. The recruiting boards were set up to fill the same function, but speedily, in order to get urgently needed doctors into the service.

Letter Sent

On the basis of the understanding reached in Duluth, the state Procurement and Assignment Committee sent a letter of explanation to each member following the meeting. The letter announced that all physicians under the age of 45 should hold themselves in readiness to apply for commissions as the need arises. For the present, however, and until the emergency demands otherwise, only those who are under thirty-seven years

of age, and a few other special cases, will be called upon to apply for commissions.

A letter was to be sent to all of the latter who have been classified as available, informing them of the fact and urging them to apply immediately to the Medical Recruiting Board set up by the Surgeon General of the Army at 496 Lowry Medical Arts Building in Saint Paul.

This Board is now made up of Major C. A. Wood, representing the Surgeon General, Major Baptiste Groebner, representing the Adjutant General, Captain George E. Moore of the Army Air Corps, and Lieutenant Delow W. McCormack of the Dental Corps.

Minnesota is still some 400 short of its quota of approximately 900 physicians required by the Army and the Board will remain in Saint Paul, it is understood, until that quota is filled or other methods are put in force for securing the required number.

No Experiments Here

War with its drain upon finance and manpower leaves little time or popular attention for the experiments in new types of medical service which formerly occupied the foreground of much medical as well as lay discussion.

In Minnesota the Committee on Sickness Insurance of the Minnesota State Medical Association continues its detailed studies of all legal and social aspects of sickness insurance but is not prepared to promote any type of prepayment plan for medical services. Several county societies have considered the matter and have been assured of the interest and assistance of the state committee; but experience in other states has not been such as to prompt precipitate action here.

Aid Offered

The state committee reported on its studies in Duluth, offered its services to interested groups who would like the benefit of figures gathered in its files but made no recommendations for immediate action.

Meanwhile a prepayment plan for Farm Security Administration clients was reported as underway, with Council approval, in two counties—Ottertail and Morrison. No conclusions as to the success of this first undertaking of the sort in Minnesota were made to the Delegates inasmuch as the experiment is not yet one year old.

WARTIME CHANGES

It is probable, in view of wartime pre-occupations, that attempts at out-and-out socialization of medicine by the government is unlikely for some time to come. Changes in the pattern of American medical service are more likely to come about through special programs for special population groups, such as mothers and babies and industrial workers. These programs would be inaugurated by regulation through special wartime powers to care for emergency needs.

Dr. Martha W. Eliot of the Children's Bureau is already advocating extensive new maternity and child health services to be set up on a war-emergency basis and financed on a matching basis out of social security funds.

Health Education in Minnesota

Public Health education continues to be a major function of organized medicine and the need for it becomes more acute as the war advances.

The work of the Minnesota State Medical Association in this field is outstanding, as reports of committees to the House of Delegates in Duluth clearly indicated. Medicine in Minnesota has forged ahead, in coöperation with the State Board of Health, in many fields. Active and continuing programs in nutrition, immunization and tuberculosis control were reported to the delegates, and also in the detection of eye and hearing defects in children and in the early discovery of cancer.

Program Varied

Simple nutrition pamphlets have been put in the hands of physicians for distribution to their patients. Posters and leaflets on immunization and vaccination have been disseminated widely over the state and the Meeker county experiment in county-wide testing of the population for tuberculosis, coupled with the newly inaugurated system for accrediting counties for tuberculosis control in the human population, has attracted nation-wide attention.

In addition to these special undertakings, a weekly radio program, a weekly question and answer service to newspapers, college lectures and the monthly packet service to physicians designed to aid them in public education as well as in their own practice form the groundwork

f systematic authoritative information on health in this state.

Foundations at Work

The growing interest in health everywhere is revealed by the fact that health programs now outrank education as the foremost concern of private foundations. A recent survey showed that 314 leading American foundations now grant a total of \$40,400,000 annually to this branch of social betterment.

The endeavor of the foundations is scattered, however, and it seems obvious that medicine and the medical profession must dominate the thinking and the action in this field; otherwise the public health education of the future may well be guided by men who do not understand essentials of public health.

Meanwhile, health education has become an essential part of the war effort and physicians in Minnesota, as the reports of their work in Duluth amply showed, are well prepared to assume the necessary leadership in this field.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. Du Bois, M.D., Secretary

De Witt, Iowa, Physician Loses Minnesota License for Felony Conviction

Re: State of Iowa vs. Morton Lyon, M.D.

At the last regular meeting of the Minnesota State Board of Medical Examiners held on July 10, 1942, the Minnesota license to practice medicine held by Morton Lyon, M.D., DeWitt, Iowa, was revoked. Dr. Lyon was convicted on September 9, 1935, in the District Court of Clinton County, Iowa, of a felony, to-wit: An attempt to produce abortion. At that time Dr. Lyon was sentenced to a term of not to exceed 5 years in the Iowa Prison at Fort Madison. He was also fined \$500.00 and costs. The Court suspended the sentence during good behavior, but subsequently, and on April 22, 1940, the Court vacated the suspension and ordered Dr. Lyon committed. Shortly thereafter Dr. Lyon took an appeal to the Supreme Court of Iowa, but the appeal was dismissed on November 20, 1940. On November 14, 1940, Dr. Lyon was granted a parole by the Governor of Iowa, on condition that he surrender his Iowa license to practice medicine and close his office.

According to the records of the Minnesota State Board of Medical Examiners, Dr. Lyon was born in 1866, and graduated from Rush Medical College in 1896. He was licensed to practice medicine in Iowa and Minnesota the same year. Dr. Lyon was licensed to practice medicine in Illinois in 1898 and in South Dakota in 1901.

BIRTHS AND DEATHS IN THE UNITED STATES

While the United States set a new record low for infant and maternal death rates in 1940, the "Vital Statistics Summary: United States, 1940" finds that the general mortality rate increased slightly, from 10.6 per thousand to 10.8. This change was due largely to increase in deaths from heart disease, cancer and diabetes. The birth rate, however, also increased from 17.3 per thousand of population in 1939 to 17.9 in 1940, which is the highest recorded from the birth registration area since its completion in 1933. Possibly this indicates a cyclic change closing a long period of a declining birth rate.

This increase in birth rate has been accompanied by a reduction of the infant mortality rate to 47.0 per thousand live births in 1940, which was the lowest ever recorded for the birth registration area. However, the provisional infant death rate for 1941 is 46.2, which would seem to predict a further decline. In 1915 the infant death rate was approximately 100, so that the last twenty-five years has seen a decline of about one half. It is estimated that this amounts to the saving of the lives of 973,626 infants that would otherwise have been among the 3,264,365 infants that died during the past twenty-six years. This reduction in infant mortality has taken place in both the white and Negro races, although the rate for Negroes is still considerably higher than that for the white race. The rate of decline of infant mortality has been slightly greater for the Negroes than for the white race.

The lack of medical care in rural districts, of which so much has been said and written, did not raise the death rate on the farms to the level of the city population. The rural rate in 1940 was 9.8 per thousand of population, while in the cities of more than a hundred thousand residents it was 11.3. The highest rate (12.4) was in cities of between 2,500 and 10,000 population. Males have a decidedly higher death rate than females: 12.0 to 9.5 per thousand of population, respectively. There is an even wider difference between the white and other races, the white being 10.4 and "other races" 13.8.

A comparison of the crude death rates for thirty-three specified countries, of which the latest information is for the year 1937, shows that of nations with a dominant white population Chile has the highest death rate. Yet Chile is the only nation on the western hemisphere that has an extensive system of sickness insurance. The only nations that have a lower death rate than the United States are Denmark, Uruguay, Norway, New Zealand, Australia, Canada, Union of South Africa and the Netherlands. Denmark is the only one of these countries that has a nationwide system of compulsory sickness insurance.

There is eighty times as much tuberculosis found in discharged sanatorium patients as in the unselected population, it is estimated, and thirty times more tuberculosis in the contact group than the general population.—L. M. MORSE, M.D., *Wis. Med. Jour.*, Mar., 1941.

To attend school, the young man or woman must be properly clothed. If his clothing becomes soiled or torn it should be cleaned and mended but the tailor's work, though valuable, is no part of education. Likewise, to profit in school training youth should be clothed in health. If health is impaired it must be repaired. But the medical sponging and patching are neither education nor hygiene, though the methods used in such repair may be, and are, increasingly educational.—Ed. *News Letter*, Loyola Univ., Jan., 1942.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

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WORKER HEALTH MEASURES IN TWENTY-FIVE STATES

Minnesota is one of twenty-five states in which there are actively functioning industrial health units. The states are well distributed geographically over the country and they include in their jurisdictions a labor force of approximately twenty-nine and one-half million workers, more than half of that for the whole country.

A total of 215 persons were recently discovered by the United States Public Health Service to be carrying on the activities of these departments, including physicians, engineers, sanitarians, a few nurses and clerks, with a total expenditure of slightly more than one-half million dollars.

Functioning thus, with a bare nucleus of personnel and inadequate budgets, the health service nevertheless found that these divisions were carrying on an effective and widely diversified program.

Study Launched in Minnesota

The following recommendations made on the basis of a study of the work of these divisions is particularly interesting to Minnesota physicians in as much as Minnesota's Division of Industrial Health is already well launched upon the investigation of occupational disease in Minnesota which the health service found largely lacking in most parts of the country.

"Several pertinent facts were brought out by this analysis," says the report. Of the twenty-nine and one-half million workers in these twenty-five states, about one-half of whom are engaged in industries with potential health hazards, less than two million were reached through industrial hygiene services during the period of a year. With the present personnel and budgets, this represents the peak load these divisions can apparently carry. The analysis further points out that probably one-half of the employees are working under conditions that need some correction or improvement. Instead of these conditions

improving they may be growing worse as the result of increased industrial production. Individual company reports have revealed, for example, that new health problems, totally unrelated to normal times, have been created and are causing bottlenecks in productions: that days lost from sickness and accidents have increased and that many instances of occupational diseases have developed as a result of use of toxic materials, because the supply of relatively safe substances is being diverted for production of war materials or cannot be replaced.

"These conditions clearly indicate the need for more follow-up work in those plants where recommendations for improvements have been offered. More effort in this direction will mean more compliances. Experience has shown that industry is more likely to coöperate if convinced of the need for such improvements and assured of the interest and determination on the part of the government agency responsible to see that they are carried out.

Less Than Four Per Cent

"Another shortcoming in the industrial hygiene programs is investigation of occupational diseases. The results of the analysis revealed that less than four per cent of the investigations were made for this reason. The divisions can do much not only in stimulating such investigations but also in sponsoring and inaugurating the uniform reporting of occupational disease.

"In addition there is the problem of absenteeism reporting from all disabilities, an activity that is still unexplored. Industry is not fully aware of the importance of such statistics in determining the nature and extent of its health problems. In concentrating on the vital necessity of speeding up production, it is likely to overlook the somewhat obscure factor of lost time from sickness as a cause of impeded production. The divisions can sponsor and stimulate absenteeism reporting by persuading industry to adopt systems of keeping the necessary records."

TRANSACTIONS of the MINNEAPOLIS SURGICAL SOCIETY

Stated Meeting, Thursday, March 5, 1942

President ARTHUR BRATRUD, M.D., in the Chair
Secretary R. F. McGANDY, M.D.

TRAUMATIC DISORDERS OF THE PERIPHERAL VASCULAR SYSTEM

U. SCHUYLER ANDERSON, M.D.
Minneapolis, Minnesota

Since loss of blood is one of the most serious consequences of all injuries, wounds of blood vessels have always held the interest of surgeons. Although the treatment of open wounds of blood vessels is the everyday practice of all surgeons, closed vascular traumas and functional disturbances which are traumatic in origin receive relatively less attention. The study of traumatic disorders of the peripheral vascular system becomes of great interest today because the occurrence of these injuries is greatly increased during war. Matas²² estimated that in World War I 20-25 per cent of the wounded reaching the surgeon at the first post of relief had major blood vessel injuries. In World War II, the civilian surgeon may be as much concerned about this subject as the military surgeon because of the aerial bombardment of cities and apparent non-military objectives. It is the present opinion that the surgeon is now better able to treat these injuries because he has at his command heparin, sulfonamides, blood banks and human blood plasma. A more hopeful attitude toward reparative vascular surgery is afforded by the use of heparin as demonstrated by Murray.²⁷ Since sulfonamide chemotherapy is of proved value in decreasing the incidence of infection in any wound, it will no doubt prove effectual in treating open wounds of blood vessels. A consideration of prime importance in maintaining the viability of an extremity following major blood vessel injury is the prevention and treatment of shock. The greater availability of blood for transfusion and human blood plasma for intravenous infusion will contribute greatly to a successful issue.

Traumatic disorders of the peripheral blood vessels may be classified as shown in Chart I.

An intimate knowledge of the anatomy and physiology of the peripheral vascular system is required for the intelligent treatment of injuries to blood vessels. Acquaintance with the fact that one may safely ligate the splenic artery proximal to the anastomotic blood vessels in the gastro-splenic ligament, or that one may not safely ligate the femoral artery in Scarpa's triangle to control bleeding from an open wound of this artery in the femoral canal is as important as knowing that intima must be approximated to intima to obtain successful anastomosis of blood vessels. Dependence on collateral circulation without realization of the effect of trauma on the vasoconstricting sympathetic nerve fibers supplying this circulation may lead to failure. Traumatic irritability of the arterial wall and of the

CHART I. TRAUMATIC DISORDERS OF THE PERIPHERAL VASCULAR SYSTEM

- I. Organic Lesions of Traumatic Origin
 - A. Closed Wounds
 1. Arteries
 - a. Contused
 - b. Thermal
 - c. Chemical
 2. Veins
 - a. Contused
 - b. Thermal
 - c. Chemical
 - d. Effort
 - e. Muscular strain
 - B. Open Wounds
 1. Arteries
 - a. Penetrating or puncture
 - b. Perforating
 - c. Incised
 - d. Partially ablating or avulsed
 - e. Completely divided
 2. Veins
 - a-e. Same as arteries
- II. Functional Disorders of Traumatic Origin
 - A. Arteries
 1. Vasoconstriction
 - a. Following any traumatic organic lesion of artery
 - b. Following trauma but no demonstrable organic lesion of artery present
 - c. Frostbite
 - B. Veins
 1. Valves—impaired function as a result of organic traumatic lesions of the vein.

sympathetic nerve ending may cause such severe vasospasm that arterial flow becomes entirely inadequate.

The etiology of these wounds may range in character from minor almost unexplainable, trivial traumas to severely damaging forces. Contusion or bruising of blood vessels most often follows direct trauma, such as blows or crushing injuries. Both contusion and lacerations are associated so frequently with fractures that careful examination to determine their presence or absence becomes mandatory in every fracture case. The blood vessels may be contused by the bone fragments, stretched by displacement, or penetrated by splinters of bone. Dodd⁸ has shown that blood vessels are injured most frequently when the fracture occurs at a site where the blood vessel is relatively immobile so that it cannot escape contusion. Vascular injuries are more common in the lower extremity due to the proximity of the blood vessels to bone and their fixation in fascia and aponeurosis such as the inguinal ligament and adductor canal. The ease with which the brachial artery may be injured in supracondylar fractures of the humerus is well known. Femoral thrombosis may follow fracture of the neck of the femur, as noted by Watson-

Jones.²² Heat may cause thrombosis of peripheral vessels but cold produces more commonly an effect on these structures. Freezing may cause the functional disturbance of chilblains or the organic catastrophe of gangrene from thrombosis of the blood vessels.

Thrombophlebitis of veins following intravenous infusions of sodium chloride or glucose is not at all rare. Thrombosis of the axillary vein has been ascribed to effort by many contributors to literature. A number of cases have been reported by Gould,¹¹ Barker³ and Matas.²³ Kaplan and Katz¹⁶ considered this condition a definite clinical entity but felt that the etiology has not been proved. Indirect trauma, in their opinion, however, plays a leading role. Homans¹⁴ stated that a slight strain of the calf muscles may cause thrombosis of the deep or perforating veins. He believes that this frequently unrecognized thrombosis is the source of pulmonary emboli in many instances. Sprains of the ankle have been reported by Vance³¹ and Martland²¹ as the only attributable etiology of thrombosis of the deep veins of the leg in which pulmonary embolism and death occurred.

McCartney,²⁴ in a paper on pulmonary embolism, drew certain general conclusions. Those which are pertinent to this discussion are as follows:

1. Post-traumatic thrombosis and embolism are rather common.
2. The source of the embolism is usually at the site of the injury.
3. Prolonged immobilization and rest in bed necessary for repair of fractures of the long bones of the lower extremities promote stasis and the possibility of a resulting thrombosis.
4. Fracture of the femur is the most common cause of post-traumatic pulmonary embolism.

Twenty-eight cases or 3 per cent of 1,011 cases of thrombophlebitis reviewed by Barker² were traumatic in origin. These were caused by tearing, crushing fractures, tight casts and bandages. Injury of the axillary vein from pressure of crutches or following dislocation of the head of the humerus is fairly common.

Perforation or puncture of both arteries and veins are produced by bone fragments, shotgun pellets, small calibre gun missiles and sharp-pointed weapons of small diameter. Laceration and complete division are caused by knives, gunshot discharges at close range, bomb and shell fragments, shrapnel and sharp fragments of bone.

The continuous use of rapidly vibrating tools such as the pneumatic hammer or stone cutters' chisel results in increased irritability of the arterial wall and sympathetic nerve ending to such a degree that vasoconstriction ensues. The affection may become sufficiently advanced to produce necrosis of the finger tips.

Peripheral arterial disease, whether due to trauma or other causes, may be organic or functional. Organic and functional disturbances may be present at the same time in the same artery. Organic disorders include all diseases arising from pathological alterations in the

wall of the vessels, in the lumen, and extra-arterial lesions which compress the arteries. Functional cases include all those diseases in which circulatory disturbances arise from abnormal influences upon the vaso-motor system. The organic disturbances consist of inflammatory diseases, degenerative diseases and those producing mechanical obstruction. Degenerative diseases are of interest in this discussion since knowledge of their existence prior to trauma is important in prognosis as well as treatment. Although various grades of inflammation of arteries may follow injury, it is in the production of mechanical obstruction that trauma plays the greater part. Thrombosis, embolism, external pressure by bone fragments or hematoma and ligation are the factors which produce obstruction. Hemorrhage is the result of open vascular wounds but to be controlled must be influenced by one of these factors unless successful anastomosis or suture has been accomplished.

Trauma usually produces a vasoconstriction where the vasomotor system is involved. Acute segmentary vasospasms in which there has been no actual injury to the blood vessel have been reported by Montgomery and Ireland²⁶ and Kroh.¹⁷ A bullet may enter an extremity and lodge near the major artery producing only slight extravasation of blood by no means sufficient to produce pressure on the artery. A spasm of the artery and its collaterals follows and produces occlusion of these vessels. The extremity becomes pale, cold, lifeless and pulseless. Lewis²⁰ called the condition "local arterial spasm associated with impact." Acute vasospasms which may become chronic leading to atrophy and causalgia-like conditions may follow many forms of trauma. According to Leriche^{18,19} an obliterated artery ceases to be an artery and becomes a diseased plexus of sympathetic nerve fibers provoking distal vasospasm in the anastomotic network of blood vessels. Homans¹⁶ believes a vicious reflex may follow vascular injury to such a degree that changes in skin, nerves, muscles and joints, with dystrophy and osteoporosis may occur. Pneumatic hammer disease,¹² miners' hands, and stone cutters' disease are functional vasomotor disturbances of occupation.

According to Bailey,¹ the sequelæ of localized contusion to an artery are thrombosis, embolus, secondary hemorrhage following arteritis with a weakened wall and aneurysm.

Hemorrhage from puncture of perforating wounds frequently subsides spontaneously whether or not there exists a communication to the outside through a break in the skin. Contraction of the opening in the artery by constriction of the vessel itself takes place, a blood clot plugs the opening, and thrombosis follows. If no communication with the outside exists, a hematoma may form and bleeding is stopped by extrinsic pressure on the artery. If the hematoma is large the pressure may be great enough to occlude the artery and its collateral and thus produce gangrene distal to the hematoma. The hematoma may later develop into a false aneurysm.

From complete division of an artery, massive hemorrhage is frequent. However, spontaneous cessation of bleeding may ensue, especially when the edges of the

divided vessel are rough and uneven, by contraction of the vessel and the production of a tack-like clot. If there is no external communication, bleeding may be stopped by the hematoma which invariably forms after complete division of an artery. When external communication through a break in the skin and the tissues surrounding a divided artery exists, hemorrhage is usually great and loss of life frequent. The size of the external wound is a factor in spontaneous stoppage of bleeding. Occasionally extensively damaged tissue and muscle may close the opening in the vessel, at least temporarily.

The end results of trauma to peripheral veins are obstructive or non-obstructive in character. Thrombosis may follow both open and closed wounds. Inflammation commonly is associated with the thrombosis. The obstruction to venous return may be intrinsic and be caused by pressure of a hematoma or bone fragments. Non-obstructive lesions are arteriovenous fistulae and rupture. The former is caused most often by a penetrating wound of an artery and its concomitant vein. Rupture, as in arterial trauma, occurs in the weakened or infected contused wall of the injured vein.

The immediate results of trauma causing open wounds of veins are hemorrhage and air embolism. Hemorrhage from a vein is usually less serious than that from an artery, spontaneous cessation of bleeding occurring frequently. However, in certain anatomic positions serious venous hemorrhage is often more embarrassing than arterial bleeding. Such situations are the splenic pedicle, renal pedicle, root of the neck, near the jugular bulb and deep in the pelvis. Air embolism is more serious and not infrequently fatal. The most dangerous areas in which fatal air embolism may follow vein injury are the sites just above and below the clavicles.

The immediate formation of a swelling or tumor which may increase in size or pulsate is indicative of hematoma. All suspected wounds of blood vessels should be carefully examined for extravasation of blood in the adjacent soft tissues. Massive infiltration of blood may first produce venous obstruction, followed by arterial occlusion, lymph stasis and finally gangrene. Shock may obscure and make the signs of occlusion of the blood vessels difficult to elicit. The area should be auscultated to determine the presence of a bruit. Collapse or distension of the superficial veins occurs.

Early subjective symptoms of arterial occlusion are numbness, tingling, pain, paresthesia and anesthesia. Early objective findings may be pallor, cyanosis, absent normal pulsations and paralysis. Gangrene may occur early or late. Later effects of arterial obstruction are atrophy of the muscles, contracture, ischemic neuritis, osteoporosis, trophic edema, trophic ulcers and skin changes.

Leriche¹⁸ has classified the disturbances which may follow ligation of the main artery to an extremity as follows:

1. A mechanical syndrome grading from massive gangrene down to localized necrosis in muscles, causing orthopedic troubles later.

2. Functional disorders such as intermittent claudication.

3. Vasomotor disorders with cyanosis, trophic troubles and muscular paresis.

Signs of venous obstruction are swelling of the extremity, edema and cyanosis. If the obstruction is due to thrombosis in the vein, the thrombus may be palpable. When phlebitis is associated, tenderness may be elicited. The superficial veins may be collapsed or dilated. Pain is often a prominent symptom of thrombophlebitis. There is usually increased temperature of the extremity. Late manifestations are brawny induration, pigmentation of the skin, ulceration and persistent stasis edema.

Since the usual functional disturbance following trauma to arteries is vasoconstriction, the symptoms and signs of this condition are those of occlusion. Acute traumatic segmentary vasospasm of the femoral artery will produce a cold, lifeless and pulseless extremity which may become gangrenous. In pneumatic hammer disease, circulatory arrest is initiated usually by cold weather. The fifth and fourth digits of the left hand are most frequently involved. Actual necrosis of the fingertips may be caused by the long continued vasospasm.

Michiner²⁵ stated that the failure to recognize early injury to blood vessels may result in the gradual appearance of some kind of traumatic aneurysm. Symptoms of this condition are fullness and tiredness of the extremity with pain and edema distally. A bruit and thrill may be present. Pulsations distally in the veins occur. A persistent tachycardia not explained by fever or infection should cause one to look for the presence of an aneurysm.

Immediate control of hemorrhage following open vascular wounds is a consideration of first importance, often as a life-saving measure. There is no doubt that the application of the tourniquet has saved many lives, but it is also true that the tourniquet has contributed to or has been the cause of the loss of many limbs. This means of controlling hemorrhage should not be used indiscriminately but only when large arteries are lacerated or traumatic amputation of an extremity has occurred. Bailey¹ gave the indications for the employment of the tourniquet as: (1) primary arterial hemorrhage which cannot be controlled by a firm pad and bandage or digital pressure; (2) reactionary and secondary hemorrhage; and (3) to render an operative field bloodless. When it can be used, the blood pressure cuff is the best tourniquet, since pressure is applied to a wide surface and may be adjusted easily. Venous bleeding can nearly always be controlled by a firm pad with bandage and elevation of the extremity. In using a tourniquet, one must avoid excessive as well as inadequate pressure, imperfect fixation, prolonged fixation, undue manipulation and injury to the skin. Where there is an open wound of a blood vessel with communication with the outside and ligation or repair cannot immediately be done, the application of artery forceps would seem more desirable than prolonged use of a tourniquet.

If there is no frank external hemorrhage from an

open wound, treatment of arterial injury must be directed toward the correction of one or more of the following conditions: thrombosis, hematoma and vasoconstriction. Thrombosis of an artery following contusion should nearly always be treated conservatively by attempting to increase the collateral circulation. If these methods fail, arteriectomy as advocated by Leriche¹⁰ may be contemplated. In most instances it is not feasible to remove the thrombus since recurrence invariably follows. Where heparin can be used, this may not be true. When it does seem desirable to remove the thrombus, the incision in the artery should be made above the site of the thrombus. The clot may then be removed by forceps or suction.

Whether or not a hematoma should be treated conservatively often requires keen judgment. Surgical intervention is indicated, according to Bigger,⁵ if: (1) continued or recurrent bleeding as indicated by increase in size of the hematoma occurs; (2) inadequate distal circulation persists in spite of attempts to obtain vasodilatation of the collateral circulation; and (3) large amounts of devitalized tissue are present. Pulsating hematomas may, however, heal spontaneously. If operation is necessary, a generous and adequate exposure should be made followed by evacuation of the hematoma and ligation of the artery just above and below the site of injury.

Since vasoconstriction may accompany any trauma of blood vessels, much should be done to overcome this physiologic and pathologic state whether surgery is necessary or not. The first step in this direction is the employment of appropriate methods to overcome shock. To prevent loss of an extremity from vascular injury, the blood pressure must be maintained above shock levels. The patient should be kept warm, but too much heat to the involved extremity is contraindicated when arterial trauma is present. The limb should not be exposed to temperature greater than 90 degrees Fahrenheit, according to DeTakats.⁶ Heat may speed up local tissue metabolism to the point where the damaged vessels cannot adequately supply the increased demands for fuel, and gangrene results. Freeman⁹ concluded that the extremity could be exposed to a temperature between 86 degrees and 93.2 degrees Fahrenheit without production of harmful effects. The extremity above the site of the injury as well as the body may be exposed to higher temperatures. Hot packs may be applied to the abdomen and upper thigh in injury of the popliteal artery, for example.

The limb should be placed in a dependent position, usually 10-15 degrees below the horizontal level. The position should be such that the tips of the toes or fingers retain their normal color. The use of tobacco should not be permitted. Vasodilating drugs, such as papaverin, sodium nitrite and nicotinic acid may be given. Alcoholic beverages may be helpful. The use of as much opiates as necessary to control pain is desirable. Local infiltration at the fracture site to overcome pain in those cases of blood vessel injury associated with fracture is desirable. This procedure has been employed at the Minneapolis General Hospital*

and has been found beneficial in preventing and overcoming shock accompanying fractures. Paravertebral sympathetic nerve block, spinal anesthesia and local infiltration around the injured artery with procaine often overcome vasospasm by temporary paralysis of the sympathetic nerves supplying the arteries. Various types of negative and positive pressure producing apparatus may be used and intermittent venous hyperemia or occlusion may be employed. Where the vasospasm becomes chronic, various operative procedures on the sympathetic nerves have been advocated, such as sympathetic ramisection, paravertebral ganglionectomy, periarterial sympathectomy and arteriectomy. Periarterial sympathectomy and arteriectomy do not seem entirely rational and are performed by few neurosurgeons. Preganglionic ramisection is considered by many neurosurgeons the procedure of choice because the denervated smooth muscle is less sensitive to adrenalin. There is some question about the justifiability of using any of these operative procedures since their effects are not permanent in every instance.

Acute traumatic segmentary vasospasm is seldom diagnosed without exposure of the involved artery. The exposure and application of warm saline packs usually produces vasodilatation of the constricted portion of the artery. Pneumatic hammer disease disappears on change of occupation unless the condition has become chronic. In treating frostbite one should keep in mind that vasoconstriction is a prominent phenomenon. Employment of the methods outlined above to produce vasodilatation may be beneficial. In addition to these methods, Bertocchi⁴ reported at a symposium on injuries caused by congelation the value of short wave diathermy in treating frostbite.

While there is considerable argument concerning the relative merits of ligature and suture, there are certain principles in the treatment of open vascular wounds which are accepted by most surgeons. An open wound of a vessel which is visible should always be ligated or repaired whether or not there is bleeding. However, one should not interfere primarily with an injured large vessel not visible in the wound when bleeding seems controlled and viability of the extremity distally is not endangered. It is better to permit the formation of a hematoma and a false traumatic aneurysm. These conditions can more safely be treated at a later date.

When there is absolutely no chance to preserve an extremity or its functional value, amputation should be done immediately. Following severe injury to an extremity, this procedure is often necessary to save life. When restoration of the limb can be expected following major blood vessel injury, ligation or suture should be practiced. Considerable difference of opinion is present among surgeons as to the advisability of suture during warfare. Mitchiner²⁵ considered suture not justifiable in the majority of cases since it requires a long operation, too frequently results in thrombosis at the suture line and arterial or arteriovenous aneurysms too often develop. Bigger⁵ believed that vascular suture was not feasible in World War I since contamination was great and there was profound shock present in most instances. In his opinion the procedure was time-consuming, the danger of secondary infection was

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great and, in many cases, there was too much damage to the vessel wall. In World War I, most American, British and French surgeons were of the opinion of Bigger and Mitchiner. German surgeons, however, according to Matas,²² attempted suture frequently. In the present war, Wenzl²³ has answered the question of whether the present World War has definitely decided in favor of the necessity of the suture of blood vessels in the affirmative. He compares the advantages of suture and ligation of the blood vessels. Gangrene will occur in a certain percentage of cases in which the vessels have been ligated. DeTakats⁷ gave the following figures for development of gangrene after ligation at the following sites: the subclavian artery in 9.7 per cent of the cases; the axillary artery, 9.8 per cent; the brachial artery, 3.1 per cent; the common iliac, 100 per cent; the external iliac, 13.4 per cent; the femoral artery above the profunda branch, 21.8 per cent; the femoral artery below the profunda branch, 10.4 per cent; and the popliteal artery, 37.2 per cent. Wenzl²³ found at the dressing stations and field hospitals that gangrene always developed following ligation of the popliteal artery. In those instances in which the extremity escapes gangrene, the functional disturbances following ligation may be so great as to produce a painful, useless extremity. Murray,²⁷ in using heparin after vascular suture, had 80 per cent of the blood vessels remain patent. When venous transplants were used, 70 per cent remained patent. The use of sulfonamides locally may reduce the incidence of infection and thereby decrease the danger of secondary hemorrhage. According to German authors, suture reduces mortality as well as the incidence of gangrene and functional incapacity. Nevertheless, it would seem that arterial suture should be employed only under the most favorable circumstances, in clean wounds and by those skilled in its technique. Preferably ligation should be performed in most instances and measures taken to establish and maintain an efficient collateral circulation.

When ligation is elected as the procedure of choice in treatment of an open wound of an artery, it is suggested that the following points be observed:

1. The ligatures should be placed close to the site of injury, otherwise there is danger of hemorrhage from branches of the artery.
2. The injured portion of the artery should be excised.
3. Non-absorbable material should be used for ligation in most instances.
4. At least three ligatures should be used, two proximally and one distally.
5. The concomitant veins should be separately ligated as first suggested by Makins in 1917. Holman and Edwards,²⁹ on the basis of experimental evidence, found ligation of the vein proximal to the site of arterial injury produced better results than the ligation of the vein at the same level as the artery. Venous pressure is increased by this procedure and as a result collateral circulation is stimulated.
6. Following ligation, every effort should be made to increase collateral circulation.

Reid³⁰ has made excellent suggestions in the technique of ligation. He advised: (a) when ligating arteries, less damage will be done to the arterial wall if the vessel is temporarily occluded proximally and distally during the procedure of pulling the ligature tight, (b) the size of the ligature should vary directly with the size of the artery, (c) one ligature on a large artery should be anchored, (d) one should not cover or bury ligatures of arteries in an infected or potentially infected wound, and (e) no catgut should be used.

In lieu of ligation or suture, Bailey¹ has suggested the use of a glass canula with general heparinization as a temporary expedient in dealing with wounds of large blood vessels. This is a revival of the principal of the Tuffier tube which was a paraffin-coated silver tube which ideally maintained blood flow until adequate collateral circulation developed.

Secondary hemorrhage may follow any blood vessel injury when infection supervenes, usually ten to sixteen days after injury. Shock is severe and entirely out of proportion to the amount of blood lost. As emergency measures, bleeding may be controlled by tourniquet, pressure or packing. Shock should be treated immediately. Later the bleeding vessel may be ligated close to the source of bleeding. Proximal ligation is considered futile. The infected clot is removed and the vessel ligated with silk or tape, the ends of which are brought out of the wound. Where bleeding is not serious, packing may suffice. Whether packing or ligation is used, the extremity should be immobilized. The packing may cautiously be removed at the end of forty-eight hours, while the sutures are left in place for two weeks or more.

When a traumatic aneurysm has developed, sufficient time should be allowed to elapse for the establishment of adequate collateral circulation, usually three to six months. Essential treatment of traumatic false arterial aneurysm is proximal and distal ligation of the sac, while that of arteriovenous aneurysm is quadrant ligation. In rare instances, establishment of circulation may be attempted.

The treatment of closed venous injury is mainly that of phlebothrombosis or thrombophlebitis. Prophylactically prolonged immobilization should be avoided wherever possible following trauma. DeTakats⁸ considers rest necessary for only a short period in cases of thrombosis of the superficial veins, since rest may favor or produce thrombosis of the deep veins. When it appears that the thrombosis is ascending, ligation of the saphenous vein at the sapheno-femoral junction is advised.

When the deep or perforating veins are involved, strict bed rest is necessary until temperature and pulse are normal. Heat should be applied and the leg elevated. The vein may be ligated above the site of the thrombus to prevent embolism. Paravertebral sympathetic nerve block with procaine, popularized by Ochsner and DeBailey,²⁹ especially when done repeatedly may bring symptomatic relief as well as hasten subsidence of inflammation and edema. Heparinization will prevent, according to those who have used it in a large number of cases, spread of the thrombosis. Occa-

sionally actual suppurative of an acute post-traumatic thrombophlebitis may take place with the formation of abscesses. These abscesses must be drained as they occur. Chemotherapy of phlebitis may do much to prevent this condition.

Bleeding from open wounds of veins may be controlled by: (1) pressure; (2) by leaving applied artery forceps in place for forty-eight hours; (3) by packing, although the contiguous artery may be damaged by this procedure; (4) by fine ligature; and (5) suture. When air embolism occurs, the circulation is embarrassed by air in the right auricle and in the small blood vessels of the lungs. Measures which have been suggested to overcome these conditions are aspiration of the right auricle, cardiac massage, catheterization and removal of air through the jugular vein and persistent artificial respiration.

Summary

1. A classification of traumatic disorders of the peripheral vascular system has been attempted.
2. A review of the etiology, physiology and pathology has been presented.
3. Suggestions for treatment of these disorders, stressing particularly the importance of overcoming vasoconstriction, have been made.

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THROMBOSIS OF THE AXILLARY VEIN

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Primary thrombosis of the axillary vein is a rather rare condition but is nevertheless a definite clinical entity. Veal found less than 150 cases reported in the literature up to 1940 and while this is probably not an indication of the incidence of this condition, the fact that only twenty-three authors reported more than one case up to that time appears to be significant.

A consideration of thrombosis in this location, as in others, on an etiological basis shows that four factors operate in the causation of this lesion.

1. Infection or other disease of the vein wall.
2. Trauma.
3. Venous stasis.
4. Altered state of the blood.

Acute thrombosis of the axillary vein produces a typical symptom complex, regardless of the etiology of the thrombosis. The more common signs and symptoms follow.

1. *Pain in arm and shoulder.*—This may be slight but usually is moderately or extremely severe. It is often described as a sense of soreness, or as a stinging or sticking sensation. Associated with local pain is tenderness which in general extends along the course of the involved vein.

2. *Edema.*—There is usually some redness and local swelling over the involved segment of the vein, often described as a lump, or better, a cordlike mass but in addition to this there is usually a generalized edema

of the extremity due to congestion of the entire venous and capillary bed distal to the site of blockage. The size to which this swelling develops is dependent upon the degree of involvement of the vein as well as the rate of establishment of collateral circulation.

3. *Weakness and partial loss of function of the arm.*—This is dependent upon the extent, duration and acuteness of the involvement, it being more severe as edema occurs and increases.

4. *Preservation of the radial pulse.*

5. *Elevation of systolic pressure on the affected side.*

6. *Fever may or may not be present.*

7. *Tachycardia* is a frequent sign even in the absence of fever. If persistent, it is considered evidence of continued activity of the disease.

The essential pathology of thrombosis of the axillary vein is that of obstruction of the return flow of blood from the hand and arm, vasospasm, an increase of local venous pressure and an escape of fluid into tissue. As a rule the process is not confined to the axillary vein alone but involves to some extent the subclavian, the basilic and brachial veins, occasionally the external jugular and rarely the internal jugular vein. The entire thrombus may be absorbed or it may become organized and permanently obstruct the vessels. Recanalization of the lumen may occur but this is usually incomplete and the return circulation must be carried on by the newly developed collaterals.

Veal⁵ has classified thrombosis of the axillary vein as follows:

1. Primary thrombosis.
 - (a) Thrombophlebitis, bacterial invasion.
 - (b) Phlebothrombosis, aseptic traumatic, or effort thrombosis.
2. Secondary thrombosis.
 - (a) Thrombophlebitis from regional infection.
 - (b) Thrombosis from malignancies of the axilla and chest.
- (3) Post-thrombotic syndrome.

True thrombophlebitis of the axillary vein is an exceedingly rare condition when compared with the frequency of its occurrence in the vessels of the lower extremity. There are probably two reasons for this variation. The most important is the rapid emptying of the venous system of the arm by almost continuous use of the limb and, secondly, because of the shortness of the course through which the blood must flow, stasis being unusual. This condition presents definite constitutional and local signs, namely elevation of temperature, acceleration of pulse and leukocytosis. It occurs most often in cardiac patients in whom there is slowing of venous blood flow. Phlebitis may be secondary to some regional infection or from malignancies of the axilla or chest.

In a study of approximately sixty cases of post-operative edema of the arm, following radical mastectomy for carcinoma of the breast, Veal⁶ found that the cause of the edema was an obstruction of the venous return from the arm in about 90 per cent of the cases. The obstruction in some was the result of scar formation, in others direct involvement of the

axillary or subclavian vein by the carcinoma. In an effort to reduce the incidence of obstruction of the vein due to scar formation it has been our custom to preserve a small portion of the pectoralis major and minor which is sutured in place over the vein. There is less possibility for the development of adequate collateral circulation after radical mastectomy because, due to the nature of the operation, the acromi thoracic, often the long thoracic and sometimes the cephalic vein has been sacrificed.

Phlebothrombosis (aseptic traumatic or effort thrombosis). This group is made up of sterile or non-bacterial thrombosis and includes the so-called "effort" thrombosis. This condition occurs in healthy individuals; males predominate in a ratio of 4 to 1 and the right arm is involved in a proportion of 25 to 1. The onset is usually quite acute but may be gradual. Pain is the first symptom, and swelling of the hand and arm develops rapidly. There is an associated arterial spasm which may cause the hands to feel cold and numb and produce a slight cyanosis of the fingertips. The arterial pulse can be easily palpated. Along the inner surface of the upper arm a firm, tender, cordlike mass can be felt extending up through the axilla and to the chest wall. Usually this cord involves the basilic, the brachials and the axillary, and sometimes the jugular veins. The maximum swelling usually occurs in twenty-four hours after onset and persists from a few days to a month or longer. As the edema subsides there is evidence of superficial venous collaterals developing over the upper arm, shoulder and anterior portion of the chest wall.

The explanation of the occurrence of a thrombosis following a direct crushing injury to the axillary vein is obvious. However, only a few of the cases reported have followed such an accident. Rowing a boat, tests of strength, baseball, lifting, as well as many other activities, some of which are actually trivial, have preceded the formation of a thrombosis. In some instances this condition has occurred during a patient's sleep without history of injury or trauma.

Veal,⁷ following a series of experimental studies on cadavers as well as on living subjects by means of venograms and axillary venous pressure readings during forced respirations, concluded that (1) the axillary vein was markedly compressed over the subscapularis muscle and beneath the head of the humerus with the arm in a position of abduction; with an actual stretching of the axillary vein proximal to the point of compression, and (2) that respiratory effort might cause considerable distention of the axillary vein particularly if there was any interference with back flow through connecting vessels. He feels that injury to the vein wall may readily occur during compression, stretching or distention, or a combination of two or three factors.

Injury to a vessel, whether it is traumatic, inflammatory or thermal may cause a spasm or contracture of that vessel. Venospasm may result from sympathetic irritation. During the period of spasm the lumen of the vessel may be almost occluded and cause a marked retardation of blood flow.

Whatever the mechanism, it is essential that there is some damage to the vessel wall, and then a slowing down of blood flow for the production of a thrombus. The injury may be to the intima, the valves or the entire vein wall may be damaged.

Although the acute stages of thrombosis rapidly subside, the altered physiology of the circulation may not be corrected. There may remain sufficient obstruction to the venous return to produce more or less permanent symptoms. The severity of these symptoms depends upon the degree of the formation of collateral circulation. Regardless of the type, this follows a more or less definite course depending chiefly upon the extent of the thrombosis. When it does not extend beyond the axillary vein the development of collaterals is rapid but when the thrombosis is more widespread it occurs more slowly. The important tributaries taking part in this process are the superficial veins over the anterior shoulder and chest, the veins following the acromiothoracic artery, the long thoracic and the cephalic vein. As the acute process subsides, there appear newly developed collaterals over the shoulder and upper arm and the edema disappears. There are no further symptoms while the arm is at rest but following exercise or prolonged use of the involved limb, the patient may feel a sense of fullness, weakness, fatigue or actual pain in the arm and shoulder. In some cases there may be a recurrence of the edema following prolonged exercise. The duration of this post-thrombotic syndrome is variable and at times may even be permanent.

Matas¹ has emphasized the importance of these residual symptoms and has called attention to the possible medico-legal aspects that may confront one in the management of such cases.

Treatment.—The conservative treatment of thrombosis of the axillary vein consists of (1) rest in bed, preferably in a hospital; (2) immobilization and elevation of the extremity and the application of either ice bags or large hot packs with the latter definitely favored by most writers. Rest and immobilization should be continued until there is definite evidence of collateral formation. Sulfonamide therapy has been used but in the absence of infection is hardly indicated and the results are variable.

The use of the technique of sympathetic ganglion block with procaine hydrochloride as a conservative form of therapy has been advocated by Ochsner and DeBakey. It is based on the fact that vasospasm is frequently one of the most important factors in phlebitis from the viewpoint of production of pain and disturbance by affecting nearby veins and arteries. The object of this procedure is the reestablishment of the normal exchange of intravascular and perivascular fluids and a breaking up of a vicious circle.

The technique for this procedure is to inject the stellate ganglion by the anterior approach as recommended by Ochsner^{4,5} as follows, I quote, "A point 1 cm. medial to the midpoint of the clavicle is chosen and an intracutaneous wheal of novocain is made in the skin immediately over the upper border of the clav-

icle. A fine lumbar puncture needle is introduced on a horizontal level with the clavicle and directed posteriorly and medially at a 45-degree angle with the midline. The point of the needle, after being introduced for a distance of 6 to 7 cm., impinges against the anterolateral surface of the body of the seventh cervical vertebra or at the junction between seventh cervical and first thoracic vertebrae, where the stellate ganglion lies. After ascertaining by aspiration, that the needle is not in a vessel, 10 c.c. of 1 per cent novocain is introduced. A satisfactory injection is determined by the presence of Horner's syndrome, anhydrosis, and increase in warmth of the extremity on the injected side." End of quotation.

There are no known surgical measures which will completely relieve thrombosis of the axillary vein. Surgical exploration has been undertaken in a few cases but the end results do not justify further attempts. In certain cases in which thrombosis is extensive and in which there is an extreme degree of edema, multiple skin punctures may prove helpful. This procedure must be done under strictly aseptic conditions.

Case Reports

Case 1.—W. L., a single male student, aged twenty-one; was admitted to the hospital on April 24, 1937.

He gave a history of two unusual physical exertions involving the right arm, baseball and a test of strength with another boy. Two days later the arm, forearm and hand became swollen, although not painful. Pain did not develop until six days later, the day preceding admission.

On examination, the right arm, forearm and hand were moderately swollen. There were several recent blisters on the forearm from the application of hot packs. The hand was quite red with a suggestion of cyanosis. The median basilic and cephalic veins were dilated as well as the superficial veins over the upper arm and shoulder. The thrombosed axillary vein was readily palpable and very tender. The radial pulse was strong. Temperature was normal and remained so. Pulse was 70 and respirations, 18.

X-ray examination of the upper extremity was normal. There were no other abnormal physical findings.

Diagnosis.—Thrombosis of right axillary vein.

The arm was kept in a state of complete rest, in an elevated position and with a continuous application of hot packs for fifteen days with complete disappearance of all signs and symptoms. He was discharged from the hospital on May 12, 1937, his eighteenth hospital day, with his arm in a sling.

His convalescence continued uneventfully and when last seen six months after discharge he had a perfectly normal anatomical, physiological and functional condition of the right upper extremity and axilla.

Case 2.—Mrs. W. W., a forty-seven-year-old housewife, was admitted to the hospital on September 15, 1941, giving a history of the onset of discomfort in the left axilla several days ago which actually became painful yesterday and at that time she noted a tender, reddish, cordlike mass in the axilla.

Examination showed a moderately firm, discolored, tender, swollen left axillary vein. There was no swelling of the remainder of the extremity. The radial pulse was strong. Temperature was 98.4°, pulse, 70 and respirations, 18. The white blood count was 9,000. All other laboratory and physical findings were normal.

Diagnosis.—Thrombosis of left axillary vein.

The arm was elevated, immobilized and ice packs applied thereto. This therapy was maintained for ten days with a gradual reduction in size of the axillary vein and a disappearance of all discoloration. The extremity was very gradually mobilized and the patient was discharged from the hospital with the arm in a sling on October 6, 1941, her twenty-first hospital day. There has been no recurrence.

Case 3.—Mr. E. H., single, a twenty-one year old shipping clerk, was admitted to the hospital on June 6, 1941, giving the following history.

About three weeks preceding admission, he had pain, swelling and redness of the right upper extremity after itching and curving a ball. He consulted a doctor who advised hot packs which the patient applied evenings as he continued to work. The soreness gradually subsided but there was still stiffness and some residual swelling present yesterday when he again threw a ball, this time very cautiously. He has had a recurrence of the pain, swelling and redness of the entire right upper extremity today.

Examination showed the right upper extremity to be markedly swollen, edematous and red, the fingers being cyanotic. There was also swelling and redness over the anterior chest wall. There was a large, very tender, cordlike mass extending through the axilla from the chest wall well down onto the forearm. The right biceps measured $12\frac{5}{8}$ inches and the left, 11 inches; the right forearm, $11\frac{1}{4}$ inches and the left, 9 inches. The radial pulse was strong. Temperature was 99.4° , pulse, 88 and respirations, 20. The white blood count was 12,000. There were no other abnormal findings.

The patient was put to bed with his right arm elevated and immobilized. Large ice packs which later were changed to hot packs were applied. He was placed on sulfathiazole. During the first ten days he received only partial relief from his pain and the extremity remained swollen but from that point on there was a slow but steady improvement. He was discharged on July 19, 1941, his thirty-third hospital day, his right biceps still 2 inches greater than the left and the forearm 1 inch greater.

He was observed at the office for the following five months during which period the swelling receded still more and he was allowed more and more activity. He had some difficulty on returning to work because of pain and weakness.

When last seen he had just enlisted in the army air corps, his right arm still somewhat swollen but comfortable as long as his activity was not too strenuous.

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Discussion

DR. RICHARD CRANMER: Dr. Anderson has said that heat applied to a thrombosed vessel stimulated the metabolic processes in the vicinity of that vessel and sometimes because of that there was a sloughing. Dr. Hoffert has used both heat and cold in the presence of thrombosis and my question to him is, "What, in his opinion, is the comparative value of the two as he has observed it?"

DR. HOFFERT: I believe that in general the application of moist heat is more effective than the application of cold in the treatment of this lesion in addition to being more comfortable to the patient. In those instances in which the application of cold is resorted to, I do not think it wise to apply it continuously, but it is better to apply it at intervals of an hour. Some prefer to alternate between the application of heat and cold.

Vitamins have little effect on wound healing, according to Dr. Edward L. Howes of Columbia. Extreme vitamin C deficiency may delay wound healing. Early débridement is the only way to remove contaminants, and a pair of scissors, some novocaine and a look inside of every traumatic wound is essential to good surgery. These procedures must not be abandoned in favor of any magic powder. About 10 per cent of wounds have streptococcus contamination when first seen and another 60 per cent which must be treated as open wounds receive streptococcus contamination from the human attendant unless strict asepsis is observed. Sulfonamide powders are desirable in handling an open wound.

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In Memoriam

Thomas Chalmers Clark

Dr. T. C. Clark, formerly of Stillwater, died June 19, 1942, at Washington, D. C., where he had lived for the past three or four years.

Dr. Clark was born in Quincy, Massachusetts, April 22, 1853, the son of Rev. Nelson and Elizabeth Gilman Clark. He was educated in the public schools of that state and at Bristol Academy, Taunton, Massachusetts, graduating in 1870. That same year he came to Stillwater, Minnesota, and taught school until 1877 when he began to study medicine under Dr. W. H. Pratt. He graduated from Rush Medical College, Chicago, as valedictorian of his class in 1881.

Dr. Clark was a member of the Washington County Medical Society, the Minnesota State and American Medical Associations, the Association of Military Surgeons of the United States and was a charter member of the Minnesota Public Health Association. He was actively identified with the Minnesota National Guard for twenty years, a major and surgeon of the 12th Minnesota Volunteer Infantry and surgeon in charge of the Third Division Hospital of the First Army Corps in the Spanish American War.

Dr. Clark was a member of the First Presbyterian Church of Stillwater and was active in the Masonic Order. He was also a member of the Sons of the American Revolution. For a number of years he was the physician at the Soldiers Home.

Dr. Clark was much interested in tuberculosis and worked hard in the early anti-tuberculosis campaign. In 1902 he submitted to the Washington County Medical Society the resolution approving the establishment of a tuberculosis sanatorium by the state. A bill drawn by him in conjunction with Dr. Harper Workman of Tracy was presented to the legislature but was defeated when a legislator stated it was for the benefit of the doctors only.

Dr. Clark was married in 1882 to Sarah A. Stevens of New York City. His wife died in 1899. Later he married Mary R. Breckenridge of Decorah, Iowa, who also preceded him in death. He is survived by three sons, Stephens Clark of British Columbia; William G. Clark of Washington; Colonel Harold Clark of Washington; and a daughter, Julia Breckenridge Clark also of Washington.

Emily W. Fifield

Emily W. Fifield was born at Manchester, Iowa, January 30, 1858, the only daughter of Reverend L. B. and Emily J. (nee Walworth) Fifield. She attended public schools of Cedar Falls, Iowa, and Lincoln, Nebraska, and later was a student at South Hadley, Massachusetts, at Mount Holyoke and the normal school at Salem, Massachusetts. She received her medical education and graduated from the Women's Medical College at Bal-

timore, in 1884. During the remainder of that year and 1885 she did postgraduate work in Philadelphia and New York.

In 1885 Dr. Fifield started her medical practice in Minneapolis where she did general work, interesting herself largely in gynecology and pediatrics. She attended clinics and studied in Edinburgh and London in 1900. In 1901 and 1902 she continued her postgraduate study in Baltimore under the tutelage of Doctors Osler, Kelly, Russell and Simon. For many years she was physician in charge of the medical work at Bethany Home.

Dr. Fifield was unmarried. She was active in civic affairs, being particularly interested in the Y.W.C.A. She was a member of the Park Avenue Congregational Church until she retired in 1919, when she moved to Los Angeles, California, where she lived until her death September 22, 1941.

Leonard Forrest Woodworth

Dr. L. F. Woodworth, for thirty-one years a practitioner at Le Center, Minnesota, died June 18, 1942, of a heart attack at the age of sixty-two.

Dr. Woodworth was born January 30, 1880, at Shenandoah, Iowa. He received his M.D. from the University of Iowa in 1908 and soon began practice in Le Center. His early years of practice were in the days of poor roads and when the horse and buggy were largely required.

He was a member of the Scott-Carver County Medical Society until 1940, when he transferred to the Nicollet-Le Sueur Society. He was automatically a member of the Minnesota State and American Medical Associations. He was also a member of the St. Peter Knights Templars.

He had practiced in the same community for thirty-one years and his jovial disposition and friendly smile, as well as his readiness to serve his community, state and nation gained him many friends. He was deeply interested in conservation and took an active part in the Izaak Walton League, enjoying hunting and fishing. For many years he served as health officer and was chairman of the Boy Scouts for a period of years.

Dr. Woodworth married Bertha Fickling on September 9, 1914, in Le Center. Mrs. Woodworth died in 1936. One son, Leonard, was born to this union and is now in the flying service.

"DATED" VITAMINS

"Dated" vitamins may presently become necessary, as a result of the discovery that oxygen is an enemy of vitamin D. This discovery was reported by Dr. J. C. Fritz, Dr. J. L. Halpin, Dr. J. H. Hooper and Dr. E. H. Kramke of Borden's Nutritional Research Laboratory at Elgin, Ill. They found that vitamin D, both natural and synthetic, deteriorated on standing, and have evidence that oxygen in the air was the cause of the mischief. They were able to protect the vitamin by applying protective coatings to the substances on which it was adsorbed, or by placing it in containers in which air had been replaced by an inert gas.—*Science News Letter*, April 25, 1942.

REPORTS and ANNOUNCEMENTS

CIVIL SERVICE APPOINTMENTS

The United States Civil Service Commission announces available appointments for a rotating internship and for psychiatric residents in St. Elizabeth's hospital, federal institution for the treatment of mental disorders in Washington, D. C. The positions pay \$3,000 a year. Applicants for internship must be fourth-year medical students in a Class A medical school. Applicants for the position of psychiatric residents must have served or be now serving an accredited rotating internship.

The Commission also announces positions as Junior Public Health Nurse, with no age limits, at \$1,800 a year. Registered nurses who have graduated since January 1, 1920, from an accredited school of nursing having a daily average of 100 or more patients and who have completed or are enrolled in an approved course covering one academic year in public health nursing, may apply.

Public Health Nurse positions paying \$2,000 a year are also available for Indian service, including Alaska, and for the Public Health Service. Graduation from high school is no longer required for the public health nurse.

Those interested in any of these positions may secure announcements and application forms from the Commission's representatives at first-class and second-class post offices.

PHYSICAL THERAPY COURSE AT COLUMBIA

Columbia University announces that beginning September, 1942, a program of professional studies for the training of Physical Therapy technicians will be offered. This training and instruction will extend over a two-year period and has been organized in compliance with the requirements set down for such programs by the Council on Medical Education and Hospitals of the American Medical Association. The course is being set up in University Extension in close relationship with the College of Physicians and Surgeons of Columbia University, the Nursing Education and Health and Physical Education Departments of Teachers College. The clinical and laboratory instruction will be given at the Vanderbilt Clinic, Neurological Institute, Presbyterian Hospital and New York Orthopedic Dispensary and Hospital.

Two years or sixty semester hours of college, including courses in Physics and Biology, shall be required, or graduation from an accredited School of Nursing or an accredited School of Physical Education. A Certificate of Proficiency in Physical Therapy will be granted by Columbia University to those completing the course. Further information may be obtained by writing the Office of the Committee on Physical Therapy, Room 303B, School of Business, Columbia University, New York City.

NORTHERN MINNESOTA MEDICAL ASSOCIATION

The Northern Minnesota Medical Association's annual meeting will be held at the Birchmont Hotel in Bemidji on Saturday, August 29, at 8:00 A. M. The meeting this year will consist of a one-day program and a banquet in the evening. The program is as follows:

"X-ray Diagnosis of Abdominal Disease"
Dr. C. B. Nessa, St. Cloud

"Shock Associated with Burns"
Dr. W. S. Neff, Virginia

"Lumbosacral Pain"
Dr. R. K. Ghormley, Rochester

"Miscellaneous Observations on the Diagnosis and Treatment of Anemia"
Dr. H. Z. Giffin, Rochester

"Acute Dermatological Conditions"
Dr. F. T. Becker, Duluth

The Pathological Conference conducted by Dr. E. L. Tuohy of Duluth, consisting of pathologists and men interested in various fields of medicine, will be held in the afternoon.

Those who attend are urged to bring their questions and problems along for discussion. Ample time will be allowed following each topic for full discussion, so come prepared to contribute as well as to take away ideas.

The local arrangements are in charge of Dr. T. P. Groschupf of Bemidji. A program of entertainment for the ladies is being arranged as well.

AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians has announced its 27th Annual Session to be held in Philadelphia, Pa., April 13 to 16, inclusive, 1943. Heretofore, the College has held a five-day session, but in the interest of conserving time and expense of its members, the program will be condensed into four days, Tuesday through Friday. The general management of the session and technical exhibits will be handled by the Executive Secretary, Mr. E. R. Loveland, 4200 Pine St., Philadelphia.

CENTER FOR STUDY OF INFANTILE PARALYSIS

The National Foundation for Infantile Paralysis has made a five-year, \$300,000 grant to Johns Hopkins University for an intensive and long time study of infantile paralysis. It will be used to establish and conduct the Center for the Study of Infantile Paralysis and Related Viruses at Hopkins. The choice of Hopkins was made because it was felt that there the staff

of epidemiologists, virologists, serologists, neurologists and chemists required for a comprehensive study of the disease was already available. Work at the Center will be under the direction of Dr. Kenneth F. Maxcy, professor of epidemiology in the School of Hygiene and Public Health. The funds which make this research project of the National Foundation possible are contributed each year at the time of the national celebration of the President's birthday.

PUBLIC HEALTH FELLOWSHIPS

The Commonwealth Fund of New York, the foundation established in 1918 by the late Mrs. Stephen V. Harkness, has announced through the Pan-American Sanitary Bureau, the establishment of fifteen fellowships for a one-year study of public health subjects or postgraduate medical courses for properly qualified citizens of the other American republics.

The Pan-American Sanitary Bureau, the international health agency of the American republics already has nearly 100 Latin Americans studying medicine and public health in the United States.

MISSISSIPPI VALLEY MEDICAL SOCIETY

The annual meeting of the Mississippi Valley Medical Society, which embraces the states of Iowa, Illinois and Missouri, will be held at the Hotel Lincoln-Douglas, Quincy, Illinois, September 30, October 1 and 2, 1942.

The three-day program of lectures, clinics and instructional courses is especially designed for general practitioners and constitutes a short postgraduate course.

Membership fee and first year's dues of \$5.00 include subscription to the official publication the *Mississippi Valley Medical Journal*. Annual dues thereafter are \$3.00. Free registration is given to army and navy physicians.

For further information address Dr. Harold Swanberg, secretary, 209 W.C.U. Building, Quincy, Illinois.

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WOMAN'S AUXILIARY

MRS. RAYMOND J. JOSEWSKI, *President*
Stillwater, Minnesota

MRS. W. H. RUCKER, *Publicity Chairman*
Minneapolis, Minnesota

Mrs. Raymond J. Josewski of Stillwater was elected president of the Minnesota Woman's Auxiliary at the annual meeting held June 29, 30 and July 1 in Duluth in conjunction with the meeting of the State Medical Association. She succeeds Mrs. John J. Ryan of Saint Paul, who presided at business sessions of the Executive Board and the state organization.

Other officers elected at the annual meeting are:
President-elect—Mrs. F. S. McKinney, Minneapolis
First vice-president—Mrs. Neil Dungay, Northfield
Second vice-president—Mrs. W. N. Graves, Duluth
Third vice-president—Mrs. L. P. Howell, Rochester
Recording secretary—Mrs. E. V. Goltz, St. Paul
Treasurer—Mrs. Henry Quist, Minneapolis
Auditor—Mrs. J. A. Thabes, Sr., Brainerd
Historian—Mrs. O. B. Fessenmaier, New Ulm

Honorary membership was conferred upon Mrs. James Blake of Hopkins because of her outstanding service to state and national auxiliaries.

The St. Louis County Auxiliary, hostesses to the visiting women, planned the program and made arrangements for all social events.

Convention visitors were guests at a tea at the Duluth Women's Club on the opening day and that evening joined the Medical Association for an informal dance and floor show at the Hotel Duluth. The Annual Meeting and luncheon which followed were held at the Northland Country Club. George S. Corfield, Professor of Geography at the Duluth State Teachers College, was the guest speaker. His talk, titled "Lands of the New World Neighbor," was timely, entertaining, and well-received.

Mrs. Frank N. Haggard of San Antonio, Texas, president of the national auxiliary, was a guest at the round-up breakfast on Wednesday morning.

It was felt that Duluth has excellent facilities for entertaining conventions and that the St. Louis County auxiliary deserves commendation for its hospitality and skillful handling of housing, transportation and program.

MRS. L. P. HOWELL,

Recording Secretary.

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Dr. and Mrs. Carl Simison of Barnesville are the parents of a son born June 10.

* * *

A son was born to Dr. and Mrs. C. W. Jacobson of Thief River Falls, July 9. Dr. Jacobson is associated with the Bratrud Clinic in that city.

* * *

Dr. David P. Anderson, surgeon at the Austin Clinic in Austin, reported last month for duty at Fort George Wright, Spokane, Washington, where he is a captain in the medical corps of the air force.

* * *

Dr. and Mrs. E. G. Knight of Randall have moved to Swanville where Dr. Knight will practice for a limited time, as a young doctor has been declared necessary to that community during the emergency.

* * *

Dr. A. A. Schmitz, formerly of the Mesaba Clinic at Hibbing, has become associated with the Mankota Clinic in Mankato. Dr. Schmitz was graduated from the University of Minnesota Medical School in 1937.

* * *

A new faculty appointment at the University of Minnesota Medical School is that of Dr. Ferdinand L. P. Koch of Saint Paul who has been named clinical assistant professor of ophthalmology on a half-time basis.

* * *

Dr. Bayard T. Horton of Rochester presented a paper, "Headaches, Recent Advances in Treatment," at the seventy-fifth annual meeting of the West Virginia State Medical Association at Huntington, July 13-15.

* * *

A grant of \$10,700 has been given the University of Minnesota by the National Foundation for Infantile Paralysis to support research on infantile paralysis being carried on by Dr. Herman Kabat, University of Minnesota physiologist.

* * *

Dr. H. R. Rice of Roseau reported last month to the Great Lakes Naval training station in Great Lakes, Illinois, for active duty in the navy medical corps. He holds the rank of lieutenant commander, and has been assigned to the surgical unit.

* * *

Dr. Earl Wood of Mankato has been named to do medical research in aeronautics for the government at the Mayo Clinic at Rochester. A graduate of the University of Minnesota Medical School, Dr. Wood has been on the staff of Harvard University Medical School's pharmacology department.

* * *

Commander T. B. Magath of the United States Navy, formerly of Rochester, spent a week in Rochester last month giving a series of lectures on tropical medicine at the Mayo Foundation. The lectures were for re-

serve officers of the United States Army and Navy who are in Rochester on special detail for training.

* * *

Dr. Edward Francis Walsh and his bride, the former Miss Alberta Ruth Schroeder, who were married in Saint Paul, June 27, are now living at Carlisle Barracks, Pennsylvania, where Dr. Walsh is a first lieutenant. He was graduated from the University of Minnesota Medical School in June.

* * *

The fourth-story addition to the main building of the Mineral Springs Sanatorium at Cannon Falls, was expected to be ready for occupancy about August 1. The new quarters are to be used for patients able to go to the dining room for meals, and also for room for employees.

* * *

Donald Duncan, Ph.D., associate professor of anatomy, University of Texas Faculty of Medicine at Galveston, Texas, has been appointed professor and head of the department of anatomy at the University of Buffalo School of Medicine, Buffalo. Dr. Duncan received his Ph.D. at the University of Minnesota in 1929.

* * *

Dr. A. E. Henslin who has been in practice in LeRoy for almost a half a century—since 1893—was guest of honor at a party given by members of the Rebekah and Odd Fellows lodges on his seventy-seventh birthday anniversary. Dr. Henslin, who was born near Racine, June 20, 1865, has been a member of the lodge ever since he came to LeRoy.

* * *

Appointment of Commander W. McK. Craig to Rochester as chief of neuro-surgery in the Naval Hospital at the National Naval Medical Center in Bethesda, Maryland, is announced.

Commander Craig who has been stationed at the Naval Hospital in Corona, California, visited his family in Rochester for several days last month before proceeding to his new station.

* * *

Officers of the Southwestern Minnesota Sanatorium district were re-elected at the annual board meeting held in Worthington, July 3.

They are Dr. C. L. Sherman of Luverne, president; Edwin Brickson of Adrian, vice president; N. L. Zender, St. James, member of the executive committee.

Dr. S. A. Slater of Worthington, superintendent of the sanatorium, remains as secretary of the board.

* * *

Dr. Bernard Nauth has joined the staff of the Winona Clinic in Winona, to remain until such time as military demands take him away, it is announced by the clinic. Dr. Nauth is the son of Dr. Walter W. Nauth, long-time resident of Winona, and is a grad-

uate of the University of Minnesota Medical School. During the past year, he interned at San Bernardino County hospital in San Bernardino, California.

* * *

Staff promotions recently announced at the University of Minnesota Medical School by Dr. Harold S. Diehl, dean of medical science, follow:

Dr. Arild E. Hansen promoted from associate professor of pediatrics to professor.

Dr. Joseph T. King promoted from assistant professor of physiology to associate professor.

Dr. Herman Kabat promoted from instructor of physiology to assistant professor.

* * *

Dr. Edward G. Huber, assistant dean of the Harvard school of public health and chief of the orthopedic unit of the Massachusetts state department of health, visited in Winona, his boyhood home, last month en route from Boston to Minneapolis. Dr. Huber was among the enrollees in the course given for physicians in the Kenny technique for treatment of infantile paralysis. Mrs. Huber accompanied him.

* * *

The National Foundation for Infantile Paralysis, Inc., has made available a booklet entitled, "The Kenny Method of Treatment for Infantile Paralysis," written by Drs. Wallace H. Cole (Saint Paul), John F. Pohl and Miland E. Knapp (Minneapolis), who have observed the Kenny method during the time the Foundation has financed a study of the treatment at the University of Minnesota School of Medicine, Minneapolis.

* * *

Dr. Gaylord W. Anderson, head of the department of preventive medicine and public health at the University of Minnesota, has been called to Washington, D. C., to become head of the education subdivision of the Venereal Diseases Control Division of the War Department, Office of the Surgeon General. He holds the commission of Major.

Acting head of the department during his absence will be Dr. Ruth E. Boynton, who will also continue as director of the Students' Health Service.

* * *

Dr. P. C. Welton, superintendent of the Buena Vista Sanatorium, Winona and Wabasha County institution, has resigned his position there and will leave the latter part of August for Tucson, Arizona, where he will be the chest specialist at a private clinic.

Replacing Dr. R. R. Hendrickson, who left to become superintendent of the Sand Beach Sanatorium near Detroit Lakes, Dr. Welton has been head of the institution located at Wabasha for the past year.

Dr. W. J. Cochrane of Lake City is president of the sanatorium commission.

* * *

The medal awarded annually by the Southern Minnesota Medical Association for outstanding exhibit at the state medical meeting was presented to

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MEDICINE—Two Weeks Intensive Course will be offered starting October 5th. Two Weeks Course in Gastro-Enterology will be offered starting October 19th. One month course in Electrocardiography and Heart Disease every month, except August and December.

FRACTURES AND TRAUMATIC SURGERY—Two Weeks Intensive Course will be offered starting September 21st. Informal Course available every week.

GYNECOLOGY—Two Weeks Intensive Course will be offered starting October 5th. Clinical and Diagnostic Courses every week.

OBSTETRICS—Two Weeks Intensive Course will be offered starting September 21st. Informal Course every week.

OTOLARYNGOLOGY—Two Weeks Intensive Course will be offered starting September 14th. Clinical and Special Courses every week.

OPHTHALMOLOGY—Two Weeks Intensive Course will be offered starting September 28th. Five Weeks Course in Refraction Methods starting October 19th. Informal courses every week.

ROENTGENOLOGY—Courses in X-ray Interpretation, Fluoroscopy, Deep X-ray Therapy every week.

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Drs. A. H. Wells, S. H. Boyer, Jr., and R. L. Nelson, all of Duluth, at the 89th annual convention at Duluth last month. Their exhibit was "Calcified Nodular Disease of Aortic Valve."

Given honorable mention were Dr. Alfred M. Eliott of Bemidji; Dr. F. T. Becker of Duluth; Drs. George M. Higgins and Ray D. Williams of Rochester, Dr. Arthur Gates of Northfield; and Dr. Anderson C. Hilding of Duluth.

* * *

An annual W. J. and C. H. Mayo Memorial Lectureship in the field of medicine and surgery has been established at Dartmouth College in Hanover, New Hampshire, with funds contributed by Dr. and Mrs. Waltman Walters of Rochester. Mrs. Walters is the daughter of the late Dr. W. J. Mayo and Mrs. Mayo.

Administration of the lectureship has been entrusted to the Dartmouth Medical School from which Dr. Walters was graduated in 1917.

The memorial, it was announced, has been created as "a stimulating factor in interesting men in medicine and surgery and, particularly to call attention to the accomplishments of Drs. W. J. and C. H. Mayo in these fields."

* * *

Dr. Carl L. Eckhardt of Austin, who through unusual circumstances received commissions in both the United States Army and the Navy, left July 2 for Selfridge Field, Mount Clemens, Michigan, to report for duty as a first lieutenant in the Army Air Corps.

Dr. Eckhardt applied for a commission with the Navy last January, but when months passed and he received no call for service, he enlisted with the Army and was granted a commission as a first lieutenant. Just after he took his oath for army service, he received word from the Navy offering him a commission of lieutenant senior grade. But, he was in the Army!

Dr. J. J. Morrow will continue with Dr. Eckhardt's practice, in addition to his own.

* * *

Among physicians recently granted commissions in the Army Medical Corps are:

Dr. William N. Freeman of Perham, first lieutenant, subject to call to active service about August 1.

Dr. Luther F. Davis of Wadena, first lieutenant, who left July 12 to report for duty at Fort Douglas, Utah.

Dr. L. F. Wasson of Alexandria, who expects to be called about August 1 and to be stationed at Fort Sill in Oklahoma.

Dr. Thomas E. Havel of Blue Earth.

Dr. Otis M. Marsh, who has been associated in practice with Dr. W. E. Macklin in Litchfield for the past several months.

Dr. E. Stewart Taylor of Worthington, lieutenant.

Dr. V. W. Carlson of Blooming Prairie, captain in Medical Detachment of the Army Air Corps.

Dr. P. J. Pankratz of Mountain Lake.

Dr. M. E. Lenander of St. Peter, captain, in Medical Detachment of Army Air Corps, ordered to report to Paine Field, Everett, Washington.

Dr. L. E. Sjostrom of Storden.

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Dr. W. R. Schmidt of Worthington.
 Dr. Lyle V. Berghs of Owatonna, lieutenant.
 Dr. David Gaviser of Princeton, lieutenant.
 Dr. Carl Fritsche of New Ulm, commissioned captain in Medical Detachment of the Army Air Corps, signed to duty at McChord Field, Tacoma, Washington. Dr. Albert Fritsche will take over his brother's actice.
 Dr. F. H. Rosenthal of Grand Meadow, captain, assigned to Fort Lewis, Washington.
 Dr. Robert S. Hunt of Fairmont, who has been associated with his father, Dr. R. C. Hunt, at the Hunt hospital for the past two years. He has been commissioned a lieutenant.
 Dr. Robert Bailey of Fairmont, lieutenant, assigned Fort Lewis, Washington.
 Dr. R. N. Bowers, Mazeppa's only physician, commissioned a first lieutenant. Dr. Bowers expects to ave for active duty the first part of this month.

* * *

Two Minnesotans, among them a former Rochester physician, were recently given Awards of the Order of the Purple Heart for meritorious services in Burma, is announced by Lieutenant General Joseph W. Stilwell's headquarters at New Delhi, India. Five other officers of non-combat branches of the United States army also received the awards.

Those decorated included Captain John H. Grindley of Milwaukee, formerly of Rochester, and Major Donald M. O'Hara of Janesville, dentist.

Captain Grindlay, formerly of the Mayo Clinic, went from Chungking to the Burma front to perform operations and combat malaria outbreaks. He drove ambulances and helped bury the dead in addition to his surgical work.

Major O'Hara, a dentist, changed to surgery and with Major Gordon E. Seagrave, medical missionary, performed many operations by candlelight, porches of native dwellings serving as operating rooms.

* * *

Dr. Christopher Graham of Rochester was honored by the B.P.O. Elks of that city last month at their annual dinner in honor of an outstanding citizen of Rochester.

Principal speaker at the dinner held July 20, was Dr. Robert D. Mussey, chairman of the board of governors of the Mayo Clinic and former associate of Dr. Graham.

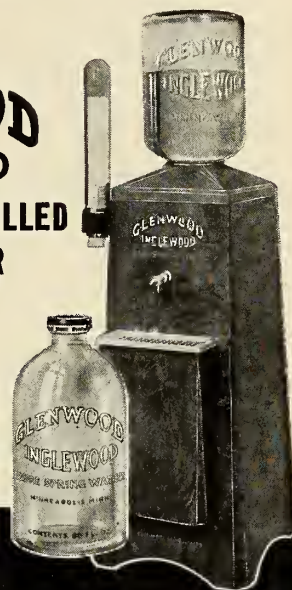
Dr. Graham, eighty-six years old, has been a physician, agriculturist, stock breeder and civic leader. He was the first intern at St. Mary's Hospital in that city in 1895.

He was appointed associate of medicine at the Mayo Clinic in 1904, and head of the division of medicine in 1914. He was professor of medicine in the Mayo Foundation graduate school at the University of Minnesota from 1915 to 1919, at which time he retired from practice.

Dr. Graham was a member of the University of Minnesota's first football team.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

THE MANAGEMENT OF FRACTURES, DISLOCATIONS AND SPRAINS. Third Edition. John Albert Key, B.S., M.D. Clinical Professor of Orthopedic Surgery, Washington University School of Medicine, Associate Surgeon in Barnes, Children's and Jewish Hospitals; and H. Earle Conwell, M.D., F.A.C.S. Orthopedic Surgeon to Tennessee Coal, Iron and Railroad Co., etc., etc. 1303 pages. Illus. Price, \$12.50, cloth. St. Louis: C. V. Mosby Co., 1942.

CIVIL DEFENSE MEASURES FOR THE PROTECTION OF CHILDREN. Report of observations in Great Britain, February, 1941. Martha M. Eliot, M.D., Associate Chief, Children's Bureau, United States Department of Labor, and Member of United States Civil Defense Mission to Great Britain. 186 pages. Illus. Price, 30c, paper cover. Superintendent of Documents, Washington, D. C., 1942.

THE CLARKS, An American Phenomenon. William D. Mangam. With an introduction by Edward Alsworth Ross, Professor of Sociology, University of Wisconsin. 257 pages. Illus. Price, \$2.50, cloth. New York: Silver Bow Press, 1941.

HELP YOUR DOCTOR TO HELP YOU. Series of medical books for laymen. Four books covering Constipation, Heart Disease, High Blood Pressure, and

Insomnia. Editorial board headed by Dr. Walter C. Alvarez, and including Dr. Logan Clendening, Dr. Howard W. Harrard and Dr. Charles W. Mayo. Price, 95c each, cloth. New York: Harper & Bros., 1942.

THE SURGERY OF PANCREATIC TUMORS. Alexander Brunschwig, M.S., M.D., F.A.C.S. Professor of Surgery, University of Chicago. 421 pages. Illus. Price, \$7.50, cloth. St. Louis: C. V. Mosby Co., 1942.

TREATMENT OF THE PATIENT PAST FIFTY. By Ernst P. Boas, M.D., Assistant Clinical Professor of Medicine, Columbia University; Chairman, Committee on Chronic Illness, Welfare Council of New York City. Cloth. 320 pages. Illus. Price \$4.00. Chicago: Year Book Publishers, 1941.

"We are becoming a country of old people." This book by Boas, especially in the introduction and the first three chapters, lists the reasons for this shift in population age levels, and the direct effect this is having on doctors' problems.

The reader will find the essence of this change portrayed in certain striking statements, such as "36½ per cent increase in the elderly among America's population in the last ten years!"

The author tackles the difficult problem of attempting to differentiate among the aging the influence of trauma, disease, bad habits, and faulty nutrition, in hastening senescence, and the factors inherent in the organism (Warthin) which biologically forecast for each individual (barring accident) his life allotment.



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ince it is difficult to take Oliver Wendell Holmes' advice to insure longevity: "Advertise for a couple of parents both belonging to long lived families"—the next best thing is to acquire habits and vocations in keeping with what fate has assigned to you. Boas stresses many items concerned in aging, such as the time when presbyopia supervenes, and shortening and body stooping appear, as indications of wavering of the life line.

Problems based upon psychological hurdles, stemming from fear of unemployment and dependency, are given part of the consideration they richly deserve.

The rest of the book is given over to short up-to-date summaries of present-day medical problems in systemic diseases. Five of eleven segments or chapters are given over to subdivisions of cardiovascular disease. The author (probably wisely) omits many references—where would he stop if he did not!

The information on therapy is compact and well chosen.

I recommend the book highly.

EDWARD L. TUOHY, M.D.

SYNOPSIS OF ANORECTAL DISEASES. L. J. Hirschman. 2nd edition. 315 pages. Illus. Price \$4.50. St. Louis. C. V. Mosby Co., 1942.

The second edition of Hirschman's "Synopsis of Anorectal Diseases" will be a welcome edition to the library of everyone interested in treating rectal diseases. This handbook has been brought up to date by the addition of new illustrations, plates, and ideas. The colored plates depicting the anoscopic and proctoscopic appearance of lesions are excellent.

The chapter on constipation and obstipation is quite complete and should be read by all medical students and men in practice. Incorrect ideas based upon unsound physiological concepts of bowel function are quite prevalent in the minds of many physicians. Dr. Hirschman's presentation of this controversial subject should put his readers on the right track.

The chapter on pruritus ani is very complete and interesting. Dr. Hirschman's long experience in treating these patients places him in a unique position to advise other physicians concerning the pitfalls which can be encountered in treating pruritus ani. The chapter contains many helpful suggestions.

This handbook serves its purpose admirably and practitioners of medicine would do well to refer to it at frequent intervals.

—W. C. BERNSTEIN, M.D.

ESSENTIALS OF GENERAL SURGERY. Wallace P. Ritchie, M.D., Clinical Assistant Professor, Department of Surgery, University of Minnesota. 813 pages. Illus. Price \$8.00. St. Louis: C. V. Mosby, 1941.

This is definitely a textbook for the undergraduate. Although it is a one-volume work, it is entirely adequate; the text has been arranged in a regional fashion, the various surgical diseases are lucidly described, and

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BOOK REVIEWS

the conventional form is adhered to without the usual stupidly pedantic ritual.

The treatment for such surgical conditions as should be cared for by the general practitioner are given in sufficient detail, whereas only the general principles of surgical operations are dealt with. For instance, the treatments for burns are given in detail, almost an entire page is devoted to Meleney's zinc peroxide treatment of necrosing pyodermic infections, and only a short paragraph to the radical operation for cancer of the breast.

The chapters on Orthopedic Surgery and on Fractures and Dislocations would each be an excellent *vade mecum* for the general practitioner.

The pictures are typical of the conditions they are supposed to illustrate, and do not impress one as having been taken from Gould and Pyle, as is often the case in books of this type.

This is an excellent students' manual of surgery which would be a useful book in any doctor's library.

The bibliographies are up to date and the articles referred to have been selected with discrimination.

HARRY B. ZIMMERMANN, M.D.

* * *


This is a valuable book on surgery for the student and also for the physician in practice. Dr. Ritchie makes no pretense to exhaustive description of any of the surgical subjects touched upon in his book. "Essentials," or the key word in the title, really spells the

excellence of this valuable treatise on surgery. Those of us who have done surgery during the past two decades realize what a boiling down process or simplification of methods has occurred. That makes a book of this sort possible today. Any subject one chooses at random from the index is treated with clear-sighted precision, with all frills omitted. I like the list of references appended to each chapter which one may use if he feels the need of elaboration. It is a very handy volume.

ARTHUR N. COLLINS, M.D.

FUNCTIONAL PATHOLOGY. Leopold Lichtwitz. 567 pages with 157 figures and 37 tables. Price \$8.75. New York: Grune & Stratton, Inc., 1941.

This is one of the best books about pathologic physiology published to date. Practically the whole field of medicine is touched upon in the discussions. While one may not always agree with the author's conclusions, one must agree that they are logical and always productive of thought. The chapters on Hypertension, Thyroid and Renal Diseases are particularly good. The author's excursions into the realms of philosophy and history are diverting and appropriate. His description of the patient with chronic arthritis (page 253) is beautifully written. The book is well illustrated and the printing and binding excellent. This volume should enjoy a wide popularity.

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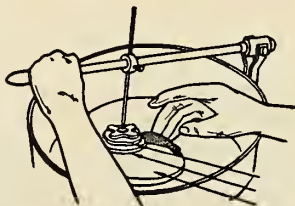
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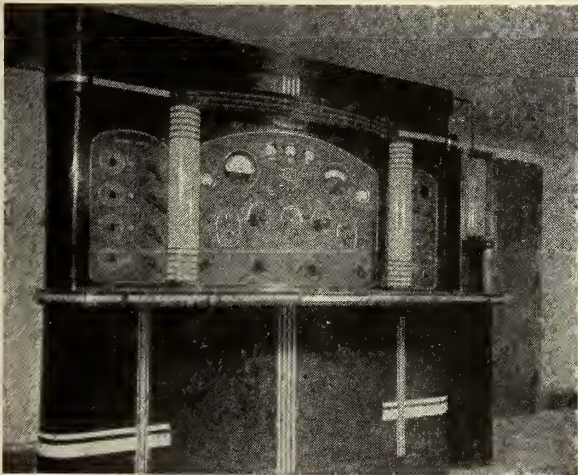
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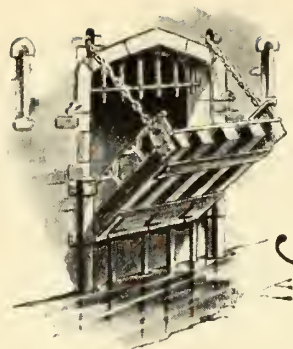
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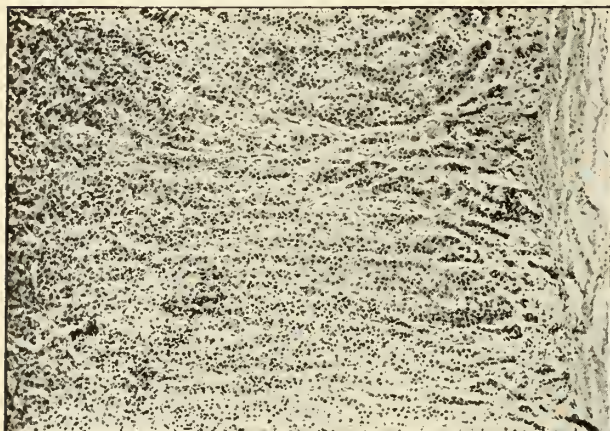
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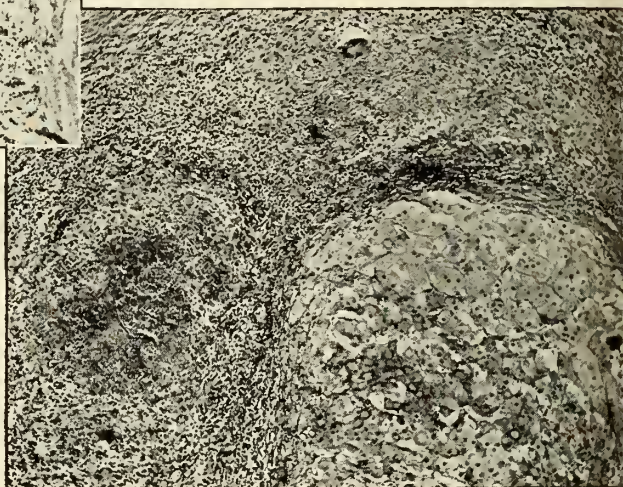


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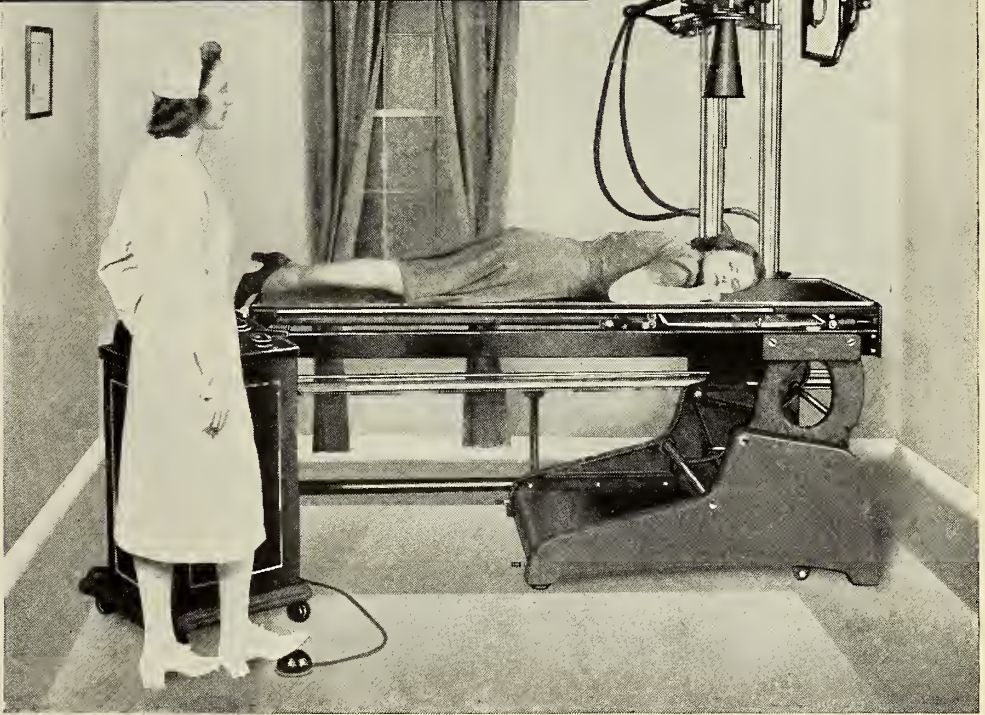
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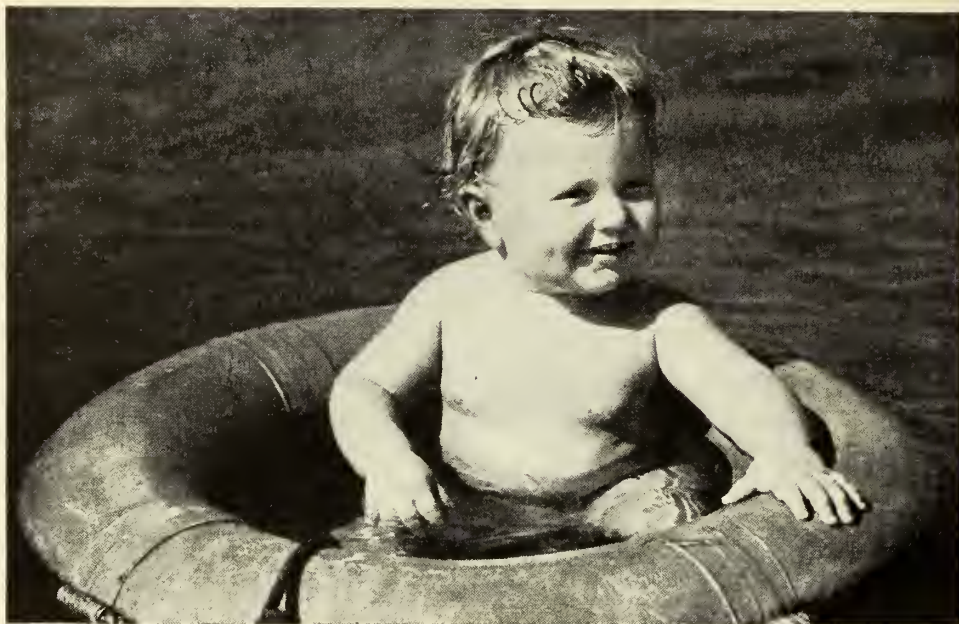
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RECENT TRENDS IN CANCER RESEARCH

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THE word "trend" signifies the development in a general direction which has taken place in cancer research during the past few years. Four trends will be discussed at this time.

1. Inbred animals and their use in cancer studies.
2. The study of naturally occurring products in the body which are of importance in the occurrence of mammary cancer in mice.
3. Chemical substances which produce cancer in experimental animals.
4. Recent work on virus-induced tumors.

Inbred Animals and Their Use in Cancer Studies

The term inbred is applied only to those strains of mice which have been bred brother-to-sister for at least twenty generations. This prolonged inbreeding produces a strain of mice in which all animals may be regarded as identical twins, and the establishment and use of such strains have done much to reduce the number of variables encountered in the study of experimental cancer. This study includes three groups of malignancies: spontaneous tumors which arise in normal untreated animals, induced tumors which are caused by the administration of certain chemicals, and transplantable tumors which are propagated by implanting a piece of tumor into the tissues of another host. During recent years a series of investigations² have been carried out with inbred strains of mice to determine the outstanding and comparative characteristics of the various strains relevant to tumor development,

so that it can be known which strain supplies the most desirable test animals for any given phase of cancer work.

The strains differ in the order of their susceptibility to subcutaneous tumors induced by chemical carcinogens. The susceptibility of a strain is determined by the period of time elapsing between the administration of a known amount of the carcinogen and the appearance of a tumor at the site of injection. In the more susceptible strains 0.8 mg. of 1,2,5,6-dibenzanthracene dissolved in lard induces tumors in the average time of 18 weeks while in the more resistant strains the same dosage requires an average time of 36 weeks. These inbred strains offer the worker who desires to study variations in susceptibility to induced tumors an opportunity to do so without the use of animals of different species which may introduce complicating factors.

The strains also exhibit wide variations in their susceptibility to the development of spontaneous mammary gland tumors. The breeding females of certain strains have an incidence of almost 100 per cent while the breeding females of other strains have an incidence of less than 1 per cent. Strains in which the breeding females develop breast cancer reveal a striking difference in the incidence of tumors in the non-breeding females. For example, the mammary cancer incidence is almost 100 per cent in non-breeding strain C3H females while in strain A it is 5 per cent and in strain dba it is 50 per cent. This wide range in susceptibility to spontaneous mammary cancer presents excellent material to investigators who wish to work on the induction, prophylaxis or therapy of this type of neoplasm.

² Résumé of the George Chase Christian Lecture, delivered April 5, 1942, at the University of Minnesota.

The incidence of spontaneous pulmonary tumors has been determined in some of the mice strains. This type of tumor is not common in most species of animals but it occurs with exceptional frequency in mice. Strain A mice are by far the most susceptible to spontaneous tumors of the lung for at the age of eighteen months 85 per cent of the animals have developed this neoplasm.

Studies in the susceptibility of the strains to pulmonary tumors induced by chemical compounds have produced some very interesting results. Pulmonary tumors were induced when the compounds were fed, inhaled, applied percutaneously, or injected subcutaneously, intraperitoneally, or intravenously. This reveals that a carcinogen may produce a tumor in an organ remote from the site of its administration.

One striking feature of the pulmonary tumor studies is the correlation between susceptibility to the development of spontaneous pulmonary tumors and susceptibility to the induced pulmonary growths. Those strains which develop the most spontaneous tumors are most susceptible to the induced tumors. It is known that in mice susceptibility to both spontaneous and induced pulmonary tumors is inherited according to genetic principles, and the question arises whether the carcinogens evoke pulmonary tumors by releasing an inherited tendency or by acting directly upon the tissues of the lung.

The natural resistance of eight inbred strains to two transplantable sarcomas has been determined. The tumors used in this work were sarcoma 37 and sarcoma 180, both of which are well-known propagable growths and have been used extensively for experimental purposes in laboratories throughout the world. Natural resistance of the mice was determined by implanting a small amount of tumor just beneath the skin in such a manner that the ensuing tumor was not firmly attached to the underlying subcutaneous tissues. These tumors have been designated as cutaneous growths and have been found to be a more delicate test for natural resistance than the implantation of tumor within the subcutaneous tissues.

Sarcoma 37 grew in all strains for seven to ten days and then regressed in all mice of five strains but grew progressively and killed all mice of three strains. Sarcoma 180 grew progressively and killed all mice of seven strains but regressed

in mice of one strain. This indicates that the strains vary remarkably in their degree of resistance to the growth energies of the two tumors. The variation in susceptibility to the growth of transplantable tumors as exhibited by the different strains, together with the temporary growth followed by complete regression in certain strains, offers an opportunity for the chemist and pathologist interested in the problem of growth and regression of transplantable tumors.

When appropriate hybrid mice were tested for natural resistance to sarcoma 37 it was shown that susceptibility to the growth of this tumor is inherited as a dominant characteristic. Up to the present time the more careful genetic studies show that susceptibility to the development of spontaneous, induced, or transplantable tumor is inherited in a dominant manner.

The use of inbred strains of mice has revealed that there is no correlation between the susceptibility to the induction of subcutaneous tumors and the natural resistance to the growth of transplantable tumors or to the development of spontaneous mammary or pulmonary tumors, and the conclusion is drawn that none of the strains is resistant or susceptible to all types of malignancies. It is inaccurate to speak of mouse strains as of high or low resistance without specifying the type of tumor.

This brief review of the inbred strains of mice indicates that the genetic constitution of the test animal is of fundamental importance in experimental cancer and that the investigation of spontaneous, induced, or transplantable tumors can be simplified by the use of an appropriate strain or strains. Furthermore, the confusing results which may accompany the use of ordinary "market or stock" animals can be avoided. Workers in the field of experimental cancer are indebted to the geneticists who have made possible and have developed such valuable material for investigative work.

The Study of Naturally Occurring Products in the Body Which Are of Importance in the Occurrence of Mammary Cancer in Mice

This trend in cancer research is an outgrowth of the trend we have just discussed, for, without the development of high- and low-mammary-cancer strains, the transmission through the mother of the influence responsible for the occurrence

f mammary cancer in mice could not have been demonstrated. The breeding of high cancer strain females to low cancer strain males produced offspring which developed mammary cancer, while the breeding of low-cancer-strain females to high-cancer-strain males resulted in offspring which did not develop this type of neoplasm. Next it was found that foster nursing of mice of strains with a high incidence of mammary cancers by females of strains with a low incidence reduced the incidence in the fostered females, and, conversely, foster nursing of mice of strains with a low incidence by females of strains with a high incidence increased the incidence in the fostered females.

Intensive studies have revealed that at least three factors are involved in the occurrence of mammary cancer in mice. These are: the milk influence, the genetic, and the hormonal.

Little need be said concerning the milk agent for this was ably discussed by Dr. J. J. Bittner⁹ in the 1940 lecture of this series. Only a few of the more recent observations will be mentioned. It is now known that the agent is widely distributed throughout the body for it has been found in the spleen, lactating gland, and whole blood.²⁵ It is also present in mammary tumors. It is filterable and able to survive a certain amount of glycerolization.¹⁰ It produces definite morphologic changes in the architecture of the mammary gland²³ and these changes may represent precancerous lesions which eventuate into malignancy. This is of considerable interest for it suggests that the agent may be the inciter of a premalignant lesion only and leads to speculation concerning the possibility of other agents producing precancerous lesions in other organs and species and then, unlike the mammary cancer inciter of mice, disappearing or remaining undetectable in the resultant tumor.

Recent work^{11,24} shows that in the ultracentrifuge the agent can be sedimented from mouse milk and that the size of the active particle is probably less than that of some of the larger known viruses such as vaccinia virus. Further results on the identification of the agent are awaited with interest.

There is clear-cut evidence that the incidence of mammary cancers in mice is directly proportional to the time the newborn spend with their mother, that is, the amount of milk they ingest during the first hours of life. Mammary tumors

will occur in mice which have remained with their high-cancer-strain mother for only three hours after birth and the feeding of as little as 0.1 c.c. of high-cancer-strain milk will cause tumors in susceptible mice. This implies that an event occurs in the first few hours of life which leads to the development of malignancy in normal untreated mice when they are from seven to eighteen months of age. The importance of this fact must be realized when the epidemiologist attempts to correlate the occurrence of mammary gland tumors with the ingestion of mother's milk in other species of animals.

The genetic factors in the occurrence of mammary cancer in mice control the degree of susceptibility to both the milk influence and the hormonal influence. The earlier investigators showed the importance of the genetic influence when they developed strains of mice which were of high or low susceptibility to mammary cancer and it was generally conceded that the genetic constitution of the mouse was one of the essential factors involved in the occurrence of this neoplasm.

Following the discovery of the extrachromosomal influence present in mother's milk, experiments were performed to ascertain the relationship between this influence and the genetic make-up of the animal. This was accomplished⁴ by breeding high-tumor-strain females to low-tumor-strain males which produced the F_1 hybrid generation and it was found that these hybrids showed a high incidence of mammary tumors. When, however, these hybrid females were mated to resistant males the resultant first-backcross-generation exhibited a low incidence of tumors, and further breeding of the first-backcross-generation females to resistant-strain males produced mice which were almost free from mammary tumors. The use of females from high tumor lines and in all the hybrid generations permitted the passage of the milk influence to subsequent generations, but the genetic influence introduced by the males of low cancer strains rendered the animals resistant to mammary cancer. This type of experiment showed clearly that the genetic constitution of the mouse is of considerable importance in determining whether it will develop a tumor of the breast.

The exact rôle played by the genetic influence is obscure. It may enable the animal to live its allotted span of life without developing tumor

or may enable it to destroy the influence obtained in the milk. A strain of mice may be highly susceptible to mammary cancer because their genetic make-up enables them to propagate the milk influence while a low tumor strain may possess genetic factors which make them incapable of propagating the influence. The disappearance of tumors in hybrids in which the chromatin of resistant strains predominate tends to support this speculation. Furthermore, it was found⁵ that strain C mice which develop few spontaneous mammary tumors are highly susceptible to the milk influence of a high tumor strain and are able to transmit the influence through subsequent generations. Strain C mice may be regarded as possessing the genetic factors necessary for the establishment of a high-mammary-cancer strain but remain a low cancer strain until the introduction of the milk influence. Strain C57 Black mice differ from strain C mice in that they are much more resistant to the milk influence and do not transmit the influence through successive generations. Their genetic factors may enable them to destroy the influence.

These studies on the importance of heredity in the mouse should be kept in mind in any discussion concerning the effect of heredity upon the occurrence of tumors in other species. In mice we have highly inbred strains of animals which are genetically susceptible to mammary cancer as well as an agent which is a powerful cancer inciter, but two generations of breeding are sufficient to overcome both the hereditary tendency and the inciter. This indicates that in other species which do not begin to approach the mouse so far as genetic uniformity is concerned, it is extremely hazardous to predict the occurrence of tumors on the basis of tumorous or nontumorous ancestry.

The hormonal influence was long considered an essential factor in the occurrence of mammary cancer in mice.¹⁴ Male mice of high-mammary-cancer strains do not develop tumors of the breast and, as stated previously, in some strains there is a pronounced difference in the incidence of tumors in breeding and nonbreeding females. This alone is sufficient evidence of the importance of estrogenic hormones in this species. It is also known¹⁹ that cancer of the breast does not occur in females which are ovariectomized when four weeks of age and that males of certain strains will develop mammary tumors following

the administration of estrogenic hormones. The ease with which tumors can be induced in the males by estrogen depends upon their origin; for those from strains in which the females develop many mammary tumors are far more susceptible than those whose female litter mates are resistant to this neoplasm.

The discovery of the milk influence led to investigation of its relationship to the hormonal influence. It was found²¹ that foster nursing of strains with a high incidence of mammary tumors by females from strains with a low incidence reduced the incidence of mammary tumors in estrogen-treated males and that foster nursing of strains with a low incidence by females with a high influence increased the incidence in estrogen-treated males. These findings, together with the pronounced effect of foster nursing upon the occurrence of mammary tumors in females, show clearly that estrogenic hormones are not the chief stimulus in the etiology of mammary cancer in mice. Their function appears to be the preparation of the mammary gland for the activity of the milk influence; for if the milk influence is not present, large amounts of estrogen do not lead to the development of mammary tumors.

The estrogenic substances are, however, naturally occurring products in the body which play an important part in the occurrence of other types of tumors. The administration of estrogen has produced tumors of the pituitary,¹⁵ uterus,¹ testicle²² in the mouse, of the mammary gland¹⁸ in the rat, and of the uterus¹⁸ in the guinea pig.

Chemical Substances Which Produce Cancer in Experimental Animals

This trend has its roots in the observations of Percival Pott who, in 1775, recognized the relationship of soot to the cancer of chimney sweeps. This clinical observation led to a long series of attempts to produce cancer in experimental animals, but it was not until 1915 that Yamagiwa and Ichikawa induced malignant neoplasms by repeated applications of coal tar to the ears of rabbits. The use of coal tar as a carcinogen resulted in a deluge of scientific papers which contributed much to our present knowledge of cancer in experimental animals.

The more recent aspects of this trend is founded in the discovery of a definite chemical related to coal tar and possessing cancer-inducing power. Credit for this brilliant work goes to Professor

Kennaway¹² and his colleagues in London who in 1930 reported that 1,2,5,6-dibenzanthracene possesses carcinogenic properties. Since that time over 200 compounds¹⁷ have been discovered which produce cancer in experimental animals. Only a general picture of this important trend can be given at this time. A few of the more important observations will be mentioned.

1. The structural formulæ of the carcinogens differ and, as yet, there is no possibility of arriving at any generalization regarding molecular structure and ability to produce tumors.
2. Isomers of powerful carcinogenic compounds are not able to produce tumors in experimental animals. These isomers are compounds which have the same empirical formula as do the carcinogens but the atoms are arranged differently in the molecule.
3. In general, those compounds which are carcinogenic produce irritation at the site of injection while those which fail to produce tumors are not irritating, but this is not true in all cases. Indeed, irritating substances such as mustard gas are known to inhibit tumor formation. The fact that some irritating compounds fail to produce tumors while other nonirritating substances do so, raises the question of whether irritation, per se, is responsible for malignancy. The irritation may have to be a special kind of irritation before it is capable of producing tumor formation.
4. One compound, 20-methylcholanthrene, is of special interest since it has been obtained from deoxycholic acid and cholic acid which are constituents of the bile. This suggests that the products of the body may be responsible for some malignancies.
5. As stated previously many compounds are able to induce tumors in organs remote from the site of application.
6. A single carcinogen may produce tumors in a number of different tissues. This is of considerable interest for it implies that a single causative agent may be responsible for a variety of tumors in a given species of animals.
7. Some compounds are regarded as possessing a certain degree of specificity. A few appear to be most active in the induction of tumors of the liver while others do not affect that organ.

The discovery of over 200 compounds capable of eliciting tumors in experimental animals shows clearly that it is unjustifiable to speak of the cause of cancer when referring to the etiology of this disease. There are probably a variety of causes of cancer just as there are a variety of cancers; and each type of cancer should be studied as a disease entity. Furthermore, tumors arising in the same organs of different species may be treat-

ed as separate diseases. There is a marked difference in the histologic appearance of mammary tumors in the rat and mouse and pulmonary tumors in the human and the mouse.

The availability of a large number of chemical carcinogens has given the investigator an opportunity to study their comparative carcinogenicity for different organs. In one such study⁶ thirteen compounds were examined for their ability to elicit tumors of the skin, subcutaneous tissues, and pulmonary tissues when injected beneath the skin, painted on the skin, or injected intravenously. Some compounds were more potent beneath the skin than upon the skin; some failed to induce tumors at the site of injection when injected subcutaneously but produced many pulmonary tumors; some produced tumors at the site of subcutaneous administration but failed to induce pulmonary tumors. Certain compounds were of high carcinogenicity for all tissues while others were weakly carcinogenic for all tissues. The dose administered, the route of injection, the solvent for the chemical, the strain and species of animals employed are all important factors in any study dealing with this phase of experimental cancer.

Another advantage obtained by the use of pure chemicals is the opportunity to perform quantitative experiments which are extremely important in biologic investigations. Efforts have been made to compare the carcinogenic activity of different compounds, but most of these have been performed by comparing the results obtained when a single dose of the carcinogens was injected. More thorough studies along quantitative lines are almost certain to lead to important findings. Emphasis should be placed upon obtaining more knowledge of the many available compounds.

Recent Work On Virus-induced Tumors

This trend in cancer research has been ably presented by Andrews⁷ and Rous.²⁰ The virus etiology of certain tumors in experimental animals has been generally accepted, but most investigators hold the view that so far as the causative agents of cancer are concerned the viruses represent only one of a number of etiologic factors. It is highly improbable that all types of neoplastic growths in all species are due to the activity of viruses. The foregoing discussion of the chemical carcinogens indicates that many tu-

mors may owe their origin to pure chemical substances which are incapable of reproducing themselves. In the final analysis any definition of a virus should include self-propagation.

Since this lecture deals with recent observations no effort is made to review this interesting trend which has been making progress for many years. Two of the most recent and interesting investigations will be discussed.

The first is the work of Beard⁸ and his associates at Duke University in connection with the virus of infectious papillomatosis in rabbits. This virus is easily detectable in the naturally occurring growths in cottontail rabbits but is seldom found in growth produced by infecting domestic rabbits. These workers attempted to ascertain why the virus is absent in the lesions of the domestic rabbit. They found that the virus is probably destroyed by an enzyme which is present in the tissues of the domestic but not in the cottontail rabbits. The implication of this observation is that a similar mechanism may be operating in the tumors of other species which may account for the inability of investigators to demonstrate the presence of infectious agents by the ordinary methods of transmission. A virus can disappear from the lesion after it has initiated changes which eventuate into malignancy.

The second recent contribution in this field was made by Duran-Reynals.¹³ His investigations were carried out with the well-known virus tumor of chickens. Time does not permit a detailed discussion of this valuable contribution and only a brief summary of the findings will be presented. Duran-Reynals found that the chicken virus was infective for newly hatched ducks and produced two types of lesions which he designated as immediate and late. The immediate lesions occurred within the ducks within 30 days after inoculation and could not be propagated in ducks but could readily be brought back to the chicken where it reproduced the typical chicken tumor. The late lesions, however, were found in ducks several months after inoculation and consisted of different types of tumors. These tumors could not be brought back to adult chickens but were readily transmitted to ducks. Thus, the variability of a tumor-inducing virus was established. Other series of experiments were performed which further demonstrated the extreme variability of the virus.

Duran-Reynals states that "the ease with

which, starting from the Rous virus, so many different strains of tumors have been obtained in ducks and chickens * * * weakens the objection often heard against the virus theory of cancer; namely, that one would be obliged to suppose that there is a different causative virus for every different type of tumor."

Only four definite trends in cancer research have been discussed, although it is recognized that others are of equal importance. The definition of trend as presented in the first part of this lecture precludes the mention of the work of any single investigator or any group of workers who may be interested in other important phases of experimental cancer. A development in cancer research is regarded as a definite trend when it is accepted as such and pursued in laboratories throughout the world.

Objections may be raised to the term "recent trends" applied to the subject matter of this lecture since some of the results were reported over ten years ago. It is essential to note that, as a rule, the most important advances in our knowledge of cancer have been the results of years of intensive effort by experienced investigators which indicates that in the study of the disease a period of ten years may be regarded as essential for the establishment of any definite trend.

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I HAVE enjoyed and feel very deeply the honor the Southern Minnesota Medical Association has conferred upon me in making me its president for the past year. This is a society of rural practitioners, men of outstanding reputation in their own communities, generally known for their honesty, integrity, and professional ability. We should not be forgetful, however, of the fact that there is a generous sprinkling in this group of specialists who are well known not only in the United States but in the balance of the world as well. This mingling of general practitioners and specialists has brought about a very high type of medical practice in Southern Minnesota. It is an honor to me to be counted with these men of worth-while achievements and fine reputation.

The general practitioner gets closer to the hearts and lives of human beings than anyone else on earth. It is to him they go with all their troubles and sufferings; it is he who knows their weaknesses and strong points, their family characteristics and individual traits; and it is the family physician who successfully meets their mental kinks of whatever nature they may be. In special cases, where he has exhausted his professional facilities or ability, he refers the patient to a specialist, who, in his judgment, will give the most satisfactory care.

Since the beginning of time there has been disease and suffering and in the dawn of humanity disease was looked upon as evidence of displeasure of the Gods. In these early days the physician and spiritual adviser were very closely associated in the minds of the people and the spiritual adviser was often the one sought in time of ill-

ness. All kinds of fantastic sacrifices were made to appease this so-called anger of the Gods, such as the women of India throwing their babies into the Ganges river. We find even in Biblical times the reference to driving the demons of the insane from the people into the swine, and the swine rushing into the sea and being drowned.

May I call your attention to the fact that there still exists in the minds of not a few people the idea that some forms of sickness, especially the mental, have something to do with the unseen and the uncanny. Take, for instance, two persons who are sent to Rochester. One of them is sent on to the State Hospital for the mentally ill and the other to a surgical institution. After they both return home, the one who has been at the State Hospital does not himself, nor do his friends, refer to his Rochester trip. But the one who has had an operation is pleased to recite all the details at the club, at tea, or elsewhere. This is evidence of the hangover of the old mystery in medicine.

Then we have the magic, the contact with certain things or objects which are supposed to eradicate the suffering of the human being. There is not a professional man here tonight who has not had a man come into his office with a copper wire around his wrist to cure his rheumatism, or a stolen potato placed in his pocket to become hard with dehydration signifying the hardness being taken out of his joints.

All superstitions originated in the minds of primitive peoples, lacking any great amount of intelligence and practically illiterate, yet these superstitions have been blindly followed by men for centuries, most of whom enjoyed some degree

of education. It is today more difficult to eradicate from intelligent and educated persons these absurd fallacies than it is to alter the erratic behavior of the insane. And, strange as it may seem, the doctor, in his efforts to aid mankind, finds superstitions one of the greatest handicaps when dealing with the sick. Friday is not unlucky because Christ died on that day; lemon juice will not remove freckles; handling toads does not cause warts; rubbing the warts with pork fat and burying the fat beneath a manure pile will not cure warts; the fact one is hungry does not mean he has a tapeworm. The old idea that human or animal urine had some certain healing qualities is not confirmed but is interesting when we consider that urine has been found to contain certain hormones.

I remember very well a man considerably older than myself who, when he was a boy, went to Dr. W. W. Mayo. At the time the young man was suffering from shingles. He said, "I understand if these go clear around me it will kill me." Dr. Mayo replied, "My boy, they will if they go clear around, but they'll not go clear around." We all know whiskey doesn't cure snake bites, and sulfur and molasses, or bicarbonate of soda, do not make the best spring tonics. Neither will bags of sulfur and asafoetida, making the wearer smell like a tame polecat, keep away disease.

Fruits and seeds do not give us appendicitis. Cancer and tuberculosis are not inherited. Boils do not cleanse the system. Milk from the mother's breast squirted into the baby's sore eye is decidedly harmful to the eye and not beneficial. The hair of a mad dog rubbed into the wound will not cure hydrophobia. Yet we have intelligent well educated people today who will go to irregular practitioners of the art of healing in the expectation that the laying on of hands is going to cause marvelous and permanent cures in incurable diseases. This, of course, is another visible evidence of the weakness of the human race.

While medicine is as old as humanity and probably 5000 years ago there were many skillful things done in the treatment of bones, the trephining of the skull, and even herniotomies, the real medicine of today is a comparatively new art. Even we doctors are startled when we realize that within the last 75 years the principal achievements of medicine have been attained. Entering the three principal cavities of the body—the head, the chest, and the abdomen—and the

seeming impossibility of opening joints, were all made possible by two outstanding discoveries.

The first of these was the first use in 1846 of ether as a general anesthesia which enabled the surgeon to go about his work with deliberation and freedom of anxiety for the patient's suffering. Then the work of Pasteur and Koch brought out the relation of bacteria to infection which was fundamental to surgery and made it possible to have the highly perfected aseptic surgery we know today. It is within the memory of this society when laudible pus was looked for. Further, I remember very well Dr. H. M. Workman telling of spraying the operating room with phenol to kill the germs so he might eliminate the possibility of infection.

All this has brought about, in my estimation, the foundation for a most excellent type of modern surgical technique. Our modern hospital has a trained personnel, skilled nurses, elaborate laboratory facilities, and almost perfect x-ray apparatus. The discovery of x-ray is within the memory of the writer. One of the teachers came to me all excited one morning and said, "You know, they have a machine now that will take a picture of your bones while you are still alive!" Results from surgical procedure have become so satisfactory that when occasionally a patient dies following an operation the public asks, apparently very innocently, "What went wrong?" It does not seem possible to them that death could be caused by anything other than some surgical mishap.

Medicine, surgery, and hospitals grew up first in our large cities, but now in our small country towns we are finding well-equipped hospitals. These hospitals have a large investment and the attending doctors have contributed much time and money and are looking for returns. This equipment which does such wonders may at times cause some to be overzealous or not too conscientious so that operations may be done which are not absolutely necessary. The old saw about whether the surgeon operated for appendicitis or \$150.00 sometimes may be nearer the truth than we would like it to be.

With the pyramiding of financial investments, time and study necessary for a doctor's degree, there has been an accompanying increase in the cost of hospitalization and fees for the physician and surgeon. The lengthening out of the training period of the physician and surgeon has caused a certain amount of weeding out of the poor boy

who frequently looked upon the profession of medicine as his life's calling and has put this profession more or less in the hands of children whose parents are rather well off. This later class has never developed a sympathetic contact with the masses.

After having gone through this strenuous training to bring about the much desired dream of "Doctor of Medicine" the individual sometimes forgets the ideal that has been held out before medicine for many, many years—that of the patient first and the alleviation of human suffering. I fear sometimes the doctor feels he has invested a lot and must be paid for time and expense. This same condition may arise in our modern hospitals where expenses have become higher and higher each year.

Unusually high doctor bills and unusually high hospital costs have, in my judgment, been one of the causes of the so-called call for socialized medicine. We physicians sometimes, perhaps, have been guilty of being too conservative and inclined to feel that the practices of the past should be good enough for the present and also the future, and have not been willing to readjust many of our past practices to meet with the necessities of a changing civilization.

After all is said and done we must realize that of all the babies born in the United States, 50 per cent come into the homes of those whose earning capacity is less than \$1,000; may I repeat, 50 per cent of all babies born enter the homes of indigents or those individuals whose earning capacity is less than \$1,000 yearly.

I recently referred the small son of a school teacher whose earning capacity is approximately \$1,400 per year to one of our larger hospitals for a laparotomy. The first week's hospital bill on this patient was \$94.60; the next week's, \$73.80; and the surgeon's fee was \$200.00. In other words, for the two weeks' stay in the hospital this family paid out one-fourth of a year's gross earnings—more than 3 years' net earnings. This condition has made it possible for the news-monger to find fault with our medical practice.

It has become a popular thing to criticize medicine not only by the Bernard McFadden type of cheap publication, but in the August number of the *Kiwanis Magazine* there appears an article by the editor in which he stresses the fact that our people are not being taken care of as they

should be. In this article he states that in a certain town there were thirteen unnecessary deaths in one year due to the lack of hospital facilities—this in spite of the fact there was a modern hospital within twenty-one miles on a paved highway, a distance not much greater than that traveled in many larger cities by ambulance.

Statements of this kind for lay consumption in this magazine, in my judgment, should not be allowed to go unchallenged. I, therefore, took it up with the editor and he referred me to the physician who was in charge of this hospital which is located in the hinterlands of Missouri. These people are ignorant, superstitious, and very poor. The doctor in charge writes me as follows: "The people who died in my community while I looked on and counted them did not do so because we failed to urge hospitalization but because the individual or people responsible for him could not bring himself to meet the situation. It is our thesis that if hospitalization is stripped of the non-essentials and the hospital located close to the rural individual so that he will be acquainted with it he will make use of the hospital. Moreover, experience has shown us that he can pay his own bill and not become a ward of society on a general scale."

"Our contention here is that the community more often has wanted to dump the medical problem in the lap of the doctors and with great moral emphasis accuse the doctors if they fail to assume the whole responsibility for the arranging of the financial obligation incurred. It seems to me that the mass result of this situation has been for the doctor to find himself finally unable to assume the responsibility as it is offered to him, so that the public has howled to the government to do something about it. Our deepest sympathy is with the public, but we believe it is a spoiled child."

The *Atlantic Monthly*, which we will all grant is a high type magazine, had an article in the April number a few years ago by some unknown writer who was a college graduate. She displays many queer psychological quirks in her article entitled, "I Had a Baby." She raves on about the high cost of this procedure. At the same time she honestly admits she obtained the services of one of the most expensive obstetricians in New York City and had everything the hospital could offer; then strenuously objects to what it cost her. This is like going to an expensive hotel and after-

wards figuring you could have had lodging cheaper elsewhere.

She criticizes everybody in the medical profession and finally decided to go to Switzerland to have her next baby because she said the doctor insisted on her taking an anesthetic. Now, truly, lay readers would think from this article people are being grossly overcharged.

However, in the June *Atlantic Monthly* there appears a symposium in which three level headed women go on to state they had their babies in American hospitals, had fine service, everything was satisfactory, and they were allowed many chances to have what they wanted—for instance, could have an anesthetic or not just as they liked.

In last Sunday's issue of one of our prominent religious papers we find the heading "A Woman Complains About Doctor's Fees" calling the reader's attention to how reasonably our grandmothers received obstetrical care in the past, yet now with more doctors and cars, good roads, they have to sell two of their herd of ten cows to pay for the youngest baby and still don't have enough money. The editor very thoughtfully remarks that the doctor with his modern education and facilities, the hospital with its full equipment are offering their obstetrical services for a very reasonable amount. As stated by the editor, it is not uncommon for all prenatal, delivery, postnatal care, and hospital fees to be furnished for \$50.00.

We are surprised to find in the *Atlantic Monthly* of some time ago an article by Dr. Henry E. Segerist of the Institute of History of Medicine at Johns Hopkins in which he criticizes the practice of medicine in the United States. He names a lot of countries in Europe and tells how much better medicine is handled there. He states among other things that more than 40,000,000 of our population have an income of less than \$800 a year; that the other third does not have \$1500 a year. He further states that in millions of families whose income is more than \$1500, medical care presents a most serious problem.

He goes on with a great deal of statistical freedom showing how people die of tuberculosis, cancer and heart disease and would leave the reader to believe, or reach the conclusion at least, that if we had social medicine all these people would have lived which, of course, is the farthest thing from the truth. After reading the article, if one believes everything said, he will believe we are having hundreds of unnecessary deaths from the inefficiency of the present medical setup.

Beverly Smith, writing in the *Readers' Digest* under the heading of "Diagnosing the Doctors," goes on with very startling figures that would send a cold chill into the heart of any individual. She states that 7,000 women die in childbirth every year; 70,000 children die in the first year; 20,000 die of pneumonia, etc.; that there are about 600 needless deaths each day, supposedly proving that if we had doctors working on a salary these deaths would not have occurred. She infers that all the doctor of today is after is money. She says that if a judge could decide a case one way and get \$5000 or decide it the other way and get nothing which way, she asks, would he naturally decide? She quotes our good friend Richard Cabot as being in favor of salaried physicians. Incidentally, I happen to know Dr. Cabot, as you probably do also, and I know he had a wife with a million in her own name which might help out his salary.

This country has developed over the last three centuries from a sparsely inhabited strip along the Atlantic seaboard to a teeming nation of 130,000,000 souls spread across this vast continent. We have been born with gold spoons in our mouths, pampered until we are not willing to put up with anything that does not conform to our own narrow beliefs. Imagine a nation with only 6 per cent of the world's area and 7 per cent of its population owning 33 per cent of its railroads, using 48 per cent of its coffee, 56 per cent of its rubber, owning 60 per cent of its telephone and telegraph lines, consuming 70 per cent of its oil, 72 per cent of its silk, using 80 per cent of its motor cars, having one-half of its monetary supply, fifteen billions in gold, and two-thirds of its banking resources, and yet, due to obvious maladjustments, discontented and, in many quarters, bitter.

Discontented ourselves, we have in turn become the cause of discontentment elsewhere. Not so long ago the Brazilian Ambassador ascribed the growth of fascism in his country largely to the bitterness engendered there by the fact that American labor had twenty times the income of Brazilian labor. Discontented ourselves, we are of all nations the most envied. All too many of us have very little real conception of the nature of liberty. We like to declaim about "our ancient liberties," and fail to remember that liberty, in its higher aspects at least, is not an inheritance to be handed down by operation of law from generation to generation.

We fail to realize that liberty is something that must be positively and aggressively achieved by each successive generation or else be lost to that generation, and probably to its successors. One of the great grounds of discontent today is that liberty, freedom, and civilization are not automatic. We resent the fact that we, like our forefathers, must fight in our day for freedom. Is it not obvious that what is most needed today in this enormously rich but very discontented country of ours is a clearer perspective on life as a whole? True, there are doubtless many things that need correction, medicine as well as everything else. Manifestly, the millenium cannot be reached overnight. Perfection is not to be attained by legislation. What is needed now, above all things, is unselfish, enlightened civic leadership.

The present discontent with the medical profession is just one of the many outbursts of discontent in many different walks of life. But medicine seems more vulnerable to the attacks of the agitator because within its folds we can find a great deal of sentiment which has within itself the possibilities of very lasting appeal.

The physician—first on horseback, then with his horse and buggy, more recently with his automobile, and now occasionally, in emergencies, with his airplane—has placed his skill and his devotion to duty at the service of his community. Suffice it to say that our nation and our time has been better served by its physicians than has any other nation at any other time.

In 1901 the expectation of life at birth in the country was 49.24 years. By 1941 it had advanced to 63.42 years. In short, every citizen owes at least one-fifth of his years of expectancy of life to the advances of medical science in the last half century, not to mention a much more comfortable living throughout his whole span of life. Here is a record that one would think would have endeared the medical profession to every sane person. Yet a small minority are bitterly misrepresenting and fighting us.

"Illness is a hazard of such unpredictable incidence that it cannot be budgeted in advance like most of the necessities of life. It is more disastrous than other hazards because it imposes a double penalty. It deprives the wage earner, at least, of income just when it is most needed to meet the costs of medical care. It is to meet the needs of this great middle class that cost-sharing methods have been devised."

Workmen's compensation is not only a return of a part of the salary to the disabled worker but also pays for his medical care and hospitalization. It does not extend to the care of the family when they are ill. Unemployment insurance does not cover medical care. Unemployment from the lack of a job, and unemployment due to the fact the individual is laid up from illness are much the same, so we might have unemployment cover not only loss of wages due to failure to find employment but also due to the failure of employment brought about by illness.

Writers seem to have run away with the idea that services rendered by the general practitioner are of little or no value. We must have groups of specialists in order to take care of ordinary sicknesses. As a matter of fact, in my judgment, the group is not as capable of taking care of ordinary illness as is the general practitioner. The individual who is coming down with an acute attack of influenza does not need the services of an eye, ear, nose, or throat specialist nor a brain surgeon. If we are going to insist that everybody is going to be taken care of by a group of men who are trained in specialties it is necessarily going to double or triple the medical cost of any trivial illness.

Group medicine is only necessary in cases that are especially selected by the general practitioner which he cannot take care of for one of two reasons: (1) he does not have the special equipment to make the necessary diagnosis or administer treatment; or (2) the condition is so rare that only a few men after long study are able to make diagnosis and give treatment.

We should not be too greatly shocked by the fact that a great deal of sickness is now being delegated to governmental control. We have already, and I think all believe satisfactorily so, allowed the State Board of Health to look after contagion, the County Board to care for our tuberculous patients, and the State Board of Control to care for the insane, and crippled and deformed. During the passing years there has been a gradual extension of federal agency into health activities; the United States Health Service is in the Department of the Treasury; foods and drugs in the Department of Agriculture; maternal and child welfare in the Department of Labor; the care of Indians and insane in the Department of Interior; the Medical Corps of the Army and Navy with their own establishment; the care of the veterans in the Veterans' Admin-

istration; the care of the indigent farmers in the Resettlement Administration; and so on through twenty-seven different federal agencies involving an expenditure of approximately \$600,000,000 a year.

The exponents and agitators of State Medicine have charged that the medical profession is static and obstructive, but without any compulsion from political or government sources the profession has sought constantly to advance the standards of medical education, medical licensure and hospital practice, and is now making a notable progress in the certification of specialists. Medicine has always been its own most severe critic and has done everything possible to raise the standard of medical practice.

A Municipal Employees' Health Service System was tried in San Francisco. This service was started some years ago and its success thus far had been due to the coöperation of the medical society and its members in the face of constant difficulties. In March 1941 the physicians reported feeling the crack of the politician's whip with the result that hundreds resigned in protest. The actions of the lay board seemed to be the foundation of the whole trouble; when the board was called together to consider the trouble only three of the eight directors met. It is the old story of lay people who know nothing about medicine attempting to dictate to medical men.

In a recent survey made by the American Medical Association, one-fourth of the physicians in active practice in Minnesota reported having given free care to 101,525 patients. Assuming the balance of the 3,302 physicians in the State gave an equal amount of free service, 10 per cent of the total population would have received care without paying. Who knows of anyone who is seriously ill and has no physician in attendance or cannot obtain the services of a reputable man?

There is a marked tendency to paternalism in government. Children's play must be supervised, tennis courts must be marked for them; young

people are unable to entertain themselves individually without some outside aid to give them the desired thrill. Boys and girls when they reach maturity expect some unseen hand in the form of government supervision to take care of their illnesses, give them a good job, and a good home.

During the present emergency we are becoming more aware of the privilege of living in a democracy and become much concerned when we realize there are but two great democracies left. We know that since the beginning of recorded history the masses have struggled for the right to live as free people. During the first third of the present century a larger share of the human race enjoyed freedom than in any previous period of history. Today we find progress has been reversed—more people have been subjugated during the past two years than during any similar period in history.

We are increasingly aware of the fact that we must be on guard if we are to preserve our democratic way of life. During the past, people have thought in terms of the privileges which democracy offers. If democracy is to be preserved we need to gain a greater appreciation of what democracy really is, how it may be improved, and how we may better serve this society in which we live. We need to become aware of the fact that if we are to have privileges we must also assume responsibilities.

Will organized medicine, by offering coöperation, aid in the development of a comprehensive plan of medical service, or will it wait until some system is imposed upon it where the effects can only be removed by years of continuous struggle?

Knowing the medical profession as I do, I have faith to believe that it will arise to this emergency as it has done in the past, and carry on successfully with honor to our beloved profession.

SHARK LIVERS PROMISE NEW VITAMIN SUPPLY

There will be plenty of vitamins for babies in Australia even if the reported mass drive to the altar by American soldiers and Aussie lasses causes a sharp uptrend in the continent's birth rate.

The Australian News and Information Bureau reports that a new process discovered by an Australian firm will guarantee ample supplies of shark liver oil, rich in vitamins needed by infants.

Eighteen months ago when vitamin oil imports from Newfoundland and Great Britain were plentiful, the shark livers were discarded. Today they are the center of a new industry promising to keep infants healthy and fishermen employed. Fish liver oils are rich in vitamins A and D.—*Science News Letter*, April 11, 1942.

PROGNOSIS IN HEART DISEASE: CONTRIBUTIONS OF THE ELECTROCARDIOGRAM

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THE past decade has seen the development of a vast fund of information concerning the electrocardiogram. Unfortunately the dissemination of this knowledge proceeds all too slowly, and, as in many other fields, its use by the profession lags by many years behind its discovery. Thus it is a matter of importance to occasionally review the rapidly accumulating information available for study and to ascertain what practical use can be made of it.

Much attention has been paid to the electrocardiographic findings which aid in the diagnosis of heart disease. Hand in hand with these are to be found many observations which have great value prognostically in the study of the heart patient. Experience teaches that one must always be guarded in the expression of prognosis, a hazardous matter at best, but electrocardiographic findings will often enable the inquiring physician to evaluate more accurately the risk the patient is carrying and to forecast a course of events otherwise unsuspected.

The electrocardiogram may offer information of prognostic value in two general ways. First, the findings noted in the record will often reveal much more accurately the nature of the underlying heart condition, and the elimination of any doubt in this respect will enable one to assuredly express that prognosis which clinical knowledge has already made available to us. For example, an exact diagnosis of a cardiac rhythm disturbance enables the physician to obtain a much better concept of the gravity of the underlying condition and may give valuable warning as to the future course of the disease. Also, we have come to learn much of prognostic value from the recognition of certain changes in wave conformation, voltage, and lead combinations. Observations of these findings and certain combinations of them which may be considered as syndromes of electrocardiographic changes have come to be recognized as important, not only from the standpoint of diagnosis but also from that of prognosis. The purpose of this report is to discuss the importance of these considerations as a

guide to the knowledge of what the future holds for the heart patient.

A bradycardia above fifty per minute is usually of no significance but occasionally there is found an unsuspected complete heart block with its attendant significance. Below fifty per minute it may be of no significance, but more often it is found due to auriculoventricular block, nodal or other abnormal rhythm, or toxic disturbances. Here the prognosis is that of the underlying condition which often depends on the electrocardiogram for recognition.

Sinus arrhythmia is not associated with heart disease but may be so marked as to suggest the possibility of a more serious type of disturbance such as auricular fibrillation. Here the electrocardiogram is necessary to determine its nature and avoid the more serious prognosis which attends an inaccurate diagnosis. In acute infections this type of rhythm usually disappears with an elevation of the pulse rate. It has been observed that in such conditions where the sinus arrhythmia returns during convalescence, the myocardium has probably escaped injury.

The determination of exact information concerning premature contractions can be of great importance in informing the physician concerning the gravity of a particular situation. These common arrhythmias are usually ventricular in origin and often of no significance clinically. When they occur in regular sequence, such as in pulsus bigeminus or trigeminus, they are usually indicative of heart disease when digitalis toxicity can be excluded. Occasionally they may be accompanied by a tendency to ventricular tachycardia and at times to ventricular fibrillation, usually fatal. Where the premature contractions are auricular in origin, they are frequently precursors of auricular fibrillation, definitely of more serious prognostic import. When they are found to be of multiple foci of origin, ventricular, auricular, nodal, or combinations, the underlying condition is an irritable myocardium often associated with a myocardial damage of seriousness otherwise unsuspected. Where numerous premature contractions are associated with arteriosclerotic heart disease, the progressiveness of

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the latter is emphasized and points to a much more ominous situation than where the condition is stationary.

Paroxysmal tachycardia are common disturbances of rhythm which originate in the auricles or ventricles, in the ratio of about four to one. The immediate outlook as regards the paroxysm is good regardless of the rate, duration, or apparent illness except (1) in the ventricular type which may switch to the fatal ventricular fibrillation, (2) when associated with a failing heart where fatigue may cause a fatal outcome and (3) when found in association with acute myocardial infarction, where the ventricular type is often found and where it may produce congestive heart failure. In these a guarded expression of future possibilities is the wise course to take.

Campbell and Elliot² found that 55 per cent of paroxysmal tachycardia problems are found in normal hearts, 19 per cent in rheumatic heart disease, 20 per cent in hypertension and coronary heart disease, and the rest scattered. In the normal hearts the attacks seemed to have no significance prognostically. In the rheumatic group they did not seem to influence the length of life. In hypertension and coronary heart disease one-half the patients died between five and ten years after first seen. When paroxysmal tachycardia is nodal in type, it usually has the significance of the auricular type, many of which are not associated with organic heart disease, being of vagal origin and being reversed by atropin administration. Where such reversion does not occur, the disturbance is probably associated with myocardial disease.

Auricular fibrillation is usually, but not always, diagnosed without the aid of the electrocardiogram and in itself has certain prognostic significance. If found without other evidence of heart disease, it is usually transient and the prognosis good. Where other indications point to heart disease the presence of auricular fibrillation indicates important damage. It may suddenly appear in the course of acute myocardial infarction and indicate grave danger. Embolic complications may cause sudden death. However, it is hazardous to attempt to estimate the duration of life following its onset. The majority of patients die within ten years of progressive myocardial damage. It has been pointed out that auricular fibrillation, complicated by ventricular premature contractions, is accom-

panied by a definitely more serious prognosis. DeGraff and Lingg⁴ showed that in rheumatic heart disease where auricular fibrillation set in before the age of twenty, the expectancy of life was less than one year. In older age groups this is not true, other factors being more important in determining the outlook.

Axis deviation in itself is usually not of great significance, but where recognized heart disease exists, it is indicative of a greater strain on the heart. Thus, right axis deviation in mitral rheumatic heart disease lessens life expectancy as does also left axis deviation in diseases causing an enlargement of the left ventricle.

The presence of right axis deviation associated with myocardial infarction is usually an index of a severely damaged left ventricular myocardium, often associated with extensive destruction.

Masters¹² has presented a prognostic study of right axis deviation in 173 patients over a period of four years. Fifty-seven percent of these had chronic valvular disease, of whom 28 per cent died, the poorest prognosis being among those who showed inversion of T waves in leads one and two. Twenty-one per cent of this group had degenerative heart disease, of whom 7 per cent died, all of whom had wave changes in leads two and three. Of all types, 21 per cent were dead in four years, and where associated with auricular fibrillation 33 per cent were dead in that time.

Klainer¹⁰ found in a study of arteriosclerotic and hypertensive heart disease that right axis deviation was often associated with recent myocardial infarction and that 43 per cent were dead in one month after discovery. He also found that 83 per cent were dead twenty-seven months after the condition was discovered and that the average duration of life was seventy-six months.

Many electrocardiographic changes add nothing to exact clinical diagnosis of etiology in heart disease, but they have been found to contribute to the understanding of the gravity of a situation and thus to prognosis. T wave negativity, various grades of heart block, low voltage, pulsus alternans, and changing serial records are among these changes.

T wave negativity has been well studied by many observers. Willius¹⁶ showed that in patients with heart disease, those having T wave changes had only about half the life expectancy of those without them. Of 200 cases of rheumatic aortic insufficiency without T changes, 39 per cent were dead in sixteen months, while in

sixty-two cases with T changes, 56 per cent were dead in four months. Of 137 cases of syphilitic aortic insufficiency without T changes, 46 per cent were dead in sixteen months, while of forty-two cases with T changes, 76 per cent were dead in eleven months. Of 272 cases of coronary disease with T wave negativity, 67 per cent were dead in seventeen months. This experience was similar in hypertensive heart disease. In both types of degenerative heart disease the more T waves are inverted, the poorer the outlook.

While the findings indicate that T wave changes are significant of serious heart disease, it must be emphasized that such mortality experiences may be materially altered by the more meticulous care with continued observation which should be given to patients with significantly serious electrocardiographic findings. In the hands of many physicians, therefore, this mortality may be considerably lower.

Conduction defects in the absence of toxic etiology are nearly always due to serious heart disease. They are usually unfavorable signs. Their prognosis depends on their severity, their duration, and their tendency to progress over a period of time, but an important determinant, also, is the nature of the underlying heart condition. In the severer grades of disease there is danger of cardiac standstill (Adams-Stokes Syndrome), unpredictable and often fatal. Most individuals with these grades of severity live less than two years from the time of their discovery. In acute infections, as diphtheria, these defects are signs of cardiac involvement, toxic or inflammatory. They are dangerous during the acute condition, but usually heal completely and leave no disability.

Intra-auricular block as seen in wide, notched, all P waves is due to myocardial disease importantly involving the auricles. In itself it has no independent prognostic importance save that it is frequently the precursor of auricular fibrillation.

Auriculoventricular block is always a serious condition warranting a guarded prognosis. The prognosis is that of the etiologic factor in addition to the inherent danger of sudden, unexpected death, associated at times with shifts in the grade of block, due to ventricular standstill. In coronary disease the outlook is poor.¹¹ In acute myocardial infarction it is a very ominous sign, five patients out of thirteen in one series⁹ having died. In luetic or rheumatic heart disease the

prognosis, although guarded, is less serious and patients may carry on for long periods. While auriculoventricular block occurs too infrequently for statistical analysis, it must always be considered a serious sign and a guarded prognosis maintained.

The third important type of block is intra-ventricular or bundle branch block, by far the most common. Here considerable light has been thrown on the prognosis through a number of studies. This type of block may be roughly divided into five groups, the common, uncommon, concordant, S and miscellaneous types. While most investigators have been unwilling to attribute any difference prognostically to the individual groups, recent work has shown that at least two types have quite different prognoses than the others. Willius⁵ has shown the S type to have much better prognosis than the more common types. Also, it is becoming known that an unusual type in the miscellaneous group must be recognized and separated as one which is not apparently due to heart disease, a type associated with a short P-R interval and attacks of paroxysmal tachycardias.

However, it must be recognized that the great majority of cases fall in groups which have similar significance prognostically. Sampson¹⁴ made a study of 112 cases of bundle branch block. He found that at the time of discovery of the lesion a patient has a 20 per cent chance of surviving eleven years. If he survives three years, he has a 44 per cent chance of surviving eight years. In the common type of bundle branch block there is a higher mortality than in the uncommon and miscellaneous types. In the patient with a changing electrocardiogram there is a definitely poorer outlook than where the record is stationary. The highest mortality is always found in the first year.

Comeau³ and his associates in discussing transient bundle branch block point out that it is usually associated with coronary sclerosis, the outlook depending on the progress of the disease which is determined by the clinical picture as well as a changing fundamental electrocardiogram.

Bishop and Carden¹ studied the prognosis in bundle branch block in a series of fifty cases. They point out that it is the same in complete as in incomplete block. They found the mortality to be highest in the first few years after discovery. Thirty per cent died in the first year, 15 per

cent in the second year, 10 per cent in the third year, and eight per cent in the fourth year. With each year of survival beyond the fourth the expectancy of life increased. Five patients of their series were alive after a known duration of eighteen to twenty years of intraventricular block.

Kaplan and Katz⁷ state that 60 per cent of the patients who die with intraventricular block are dead within two years. Of these 80 per cent died during the first year (27 per cent in the first three months), and 90 per cent during the first two years. Forty per cent of their series were alive two to eight years after discovery of the block. They conclude that if the patient survives the first year after discovery of the block, the prognosis is good.

Master, et al.¹³ have shown the seriousness of bundle branch block in acute myocardial infarction. In his series there was a mortality of 43 per cent, almost double that found where normal conduction occurred. In these deaths autopsy always showed previous closure of one or more branches of the coronary arteries. The outlook was not related to the type of bundle branch block which was found. An increase in mortality occurred where QRS was greater than .14 seconds, and most of the deaths were associated with myocardial failure. Also, the danger of ventricular fibrillation is increased by the presence of intraventricular block in cases where digitalis leads to ventricular extrasystoles.

In general, it should be emphasized that studies of bundle branch block can give much information concerning the prognosis of heart disease in which it is found. This is especially true if care is taken to classify this conduction defect since certain types have quite a different mortality than others. Early after the recognition of the defect it is hardest to derive information as to prognosis, but since the first year mortality is always high, patients surviving this period have a relatively good outlook, their condition frequently remaining fairly stationary and amenable to clinical control.

Alternation of the heart is an infrequent form of heart block recognized as pulsus alternans or electrical alternans. It is a condition in which a local region in the heart is partially or completely blocked out with every beat.⁸ It may be transient, recurrent, or temporary. Prognostically, when associated with tachycardia, it is of no significance, but when occurring at slow rates it is in-

dicative of organic heart disease, especially coronary sclerosis. Infrequently the types of alternans occur together. More often one or the other may occur. They have the same significance prognostically, and where the alternans persist, the patients usually do not live more than a year or two.

Low voltage has long been considered to be associated with serious myocardial damage. This is measured by the greatest deflection of the QRS complex in the standard leads and is regarded as existing where the highest QRS deflection is five millimeters or less in each of the limb leads or where it is somewhat taller than five millimeters in one lead with the sum of all amplitudes less than 15 millimeters. It may or may not be associated with low voltage in the chest leads. Many conditions amenable to treatment such as hypothyroidism, myocarditis, pericardial effusion, etc., may produce low voltage in addition to coronary disease patients which comprises the largest groups. It is, therefore, important to arrive at a correct clinical diagnosis before attempting to read significance into the electrocardiographic finding of low voltage.

Sprague and White¹⁵ studied fifty-seven cases of low voltage and found that they were usually associated with arteriosclerotic heart disease (thirty-four cases) or hypothyroidism (ten cases). Of the arteriosclerotic group only one-third were known to have been alive, and all of these were last contacted less than three years after the low voltage was found. Those who died had all lived less than two years after its discovery. Occasionally, but rarely in arteriosclerosis, the voltage may return to normal limits under therapy with a definite improvement in the outlook. This suggests an improvement in the myocardial blood supply associated with a compensating collateral circulation development.

The low voltage discussed has concerned the QRS deflection. This may or may not be associated with low T waves and is more significant where the T waves are low, less than two millimeters deflection in all limb leads. T waves are frequently low in one or two leads without significance. This is especially true in lead one associated with a low QRS complex. Such a finding is common in the vertical type heart and is of no clinical significance. Where R_I is high and T_I is low and where T is low in all leads, strong evidence of heart abnormality exists⁶. Knowledge concerning the prognostic significance of

these findings is not definite and must be obtained from knowledge of the clinical condition toward which the record is an aid in recognition.

The past decade has given the medical profession a new conception of the value of the electrocardiogram in conditions associated with changes in the myocardium, toxic or organic, transitory, progressive, or stationary. While much of the value is diagnostic, considerable of prognostic import is included and is especially provided by serial records at varying time intervals. Such records point out the evidence of toxicity due to digitalis medication and enable one to be on guard against symptoms which might be overlooked as being due to the medication. They are helpful also in showing the course of myocardial involvement in infectious disease, usually returning to normal during convalescence. The delay of such a return or failure to appear may be the only evidence pointing to continued or progressive myocardial damage which impairs the outlook for recovery.

The greatest value of the electrocardiogram is in the management of coronary heart disease. Here serial records cannot be overemphasized in the importance of their contribution to prognosis. Normally the tracings are characteristically stationary for an individual and deviations from the normal are indicative of myocardial change. In coronary disease these changes are especially helpful in giving information concerning the myocardial involvement. Often coronary disease produces a myocardial effect which becomes stationary at some point, this being demonstrated by the fact that the electrocardiogram shows no change in serial records. In other instances the progressive narrowing of the coronary arteries causes progressive myocardial changes which are reflected in the changing pattern of the electrocardiogram. These changes point prognostically to a serious type of heart disease with a definitely limited life expectancy. They may develop into some of the types previously discussed which in themselves have certain prognostic significance as shown from statistical analysis. Then again they may become stationary at any point as the process ceases to progress. Finally, though not usually, they may show a definitely improved outlook as a collateral circulation develops, especially under conditions of a long period of rest and restricted activity.

In acute myocardial infarction the serial electrocardiograms are of greatest importance in management of the disease. Not only may the type of curve indicate the severity of the initial damage, but the rapidity with which the serial tracings tend to stabilize at their eventual contour is of great value in determining the length of time absolute rest is advisable. During this rest period, as well as in the later convalescence, many of the previously described ominous features of the record may be found and point to danger which should be recognized and which may at times be lessened by proper management.

In conclusion, it is hoped that a useful concept of the value of the electrocardiogram in prognosis has been presented and that its limitations have been properly stressed. Considering the electrocardiograph from this point of view only emphasizes the warning of Katz⁸ that it "is not a tool for the unscrupulous or a plaything for the erudite. . . . Its value depends as much on the ability and experience of the cardiographer as the results of clinical examination depend on the ability and experience of the clinician. . . . It is as much of an error to expect too much from this tool as to ignore the valuable information that it can give."

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ECTOPIC PREGNANCY

An Analysis of 102 Consecutive Cases

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DURING the nine-year period, 1932 to 1940, 102 proved cases of ectopic pregnancy were admitted to the Minneapolis General Hospital. Data selected from these cases furnish the material for this study. Findings, in the main, conform to generally accepted concepts though they differ in some particulars. During this same period 7,720 patients were admitted to the gynecologic service, 15,223 to the obstetric service and 2,532 abortions were recorded. This totals 17,765 gravid women.

Our incidence is one ectopic pregnancy for approximately every seventy-six gynecologic cases, one for every twenty-five abortions and one for every 174 intrauterine pregnancies. Schuman estimated the incidence in the Philadelphia area as one to 303 uterine pregnancies.

A survey of the literature shows considerable variation in the total and operative mortality rates. Table I illustrates this more clearly.

In 588 cases including ours, the average total mortality is 5.4 per cent and the operative mortality 2.93 per cent. One hundred of our patients were operated upon with one death (1 per cent), which occurred seven days after operation. Autopsy revealed bilateral lobar pneumonia. Of the two non-operative deaths, one occurred en route to the operating room three hours after admission. Autopsy showed a ruptured cornual pregnancy with massive intraperitoneal hemorrhage. The other death was in a patient who had attempted to abort herself. She was diagnosed and treated by us as a septic self-induced abortion. She died fourteen days after admission. Autopsy showed infected tubal pregnancy with rupture into the ileum, *B. coli* septicemia and multiple lung abscesses. *B. Welchii* was cultured from the spleen.

Our favorably low total (2.94 per cent) and operative (1 per cent) mortality is especially noteworthy because of the large percentage of shock cases in this series. Twenty-eight patients (27.4 per cent) were admitted in varying grades of

TABLE I

Author	Place	No. Cases	Total Mortality	Operative Mortality
Lavell	Bellevue, N. Y.	410*	—	2.68%
Scheffey et al.	Phila.	82	4.87%	2.5 %
Ware and Winn	Richmond, Va.	150	8.00%	5.41%
Schauffler & Wynia	Portland, Ore.	65*	—	3.0 %
Thompson	Baltimore U. of Md.	40	7.5 %	—
Grier	Evanston	100	3.0 %	3.0 %
L. Miller	Phila. Gen'l.	104	6.7 %	—
Our cases	Mpls. Gen'l.	102	2.9 %	1.0 %

Average total mortality in 588 cases—5.4%
Average operative mortality in 909 cases—2.93%

shock, three mild, seven moderate, ten severe and eight practically moribund. The average incidence of shock reported in the literature is approximately 15 per cent. Langman and Goldblatt had 15 per cent in their series; Ware and Winn, 17 per cent. These conform to the findings of others. Lavell's series showed an incidence of 21 per cent. Two factors contributed to our results. These were prompt surgical interference and the use of an available blood bank. Two moribund patients received 3,600 c.c. and 4,000 c.c. of blood by transfusion within a period of several hours.

That the diagnosis of ectopic pregnancy presents many difficulties may be seen in Table II.

Definite diagnosis was made in sixty-six of our cases, suspected in twenty and missed in sixteen. Cases in this series with the diagnosis "Probable ectopic pregnancy" and no other qualifying diagnosis were listed as suspected. More liberal interpretation of these would give us a correct diagnosis in 72.3 per cent. In the presence of shock, the diagnosis presented little difficulty. Of these, twenty-seven of the twenty-eight were correctly diagnosed. The one missed entered the hospital the day after she had

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TABLE II

Author	Place	No. Cases	Correct	Suspected	Incorrect
Lavell	Bellevue, N. Y.	261	84.7%	—	15.3%
Scheffey	Phila.	82	78.7%	—	21.3%
Vare & Winn	Richmond, Va.	150	40.0%	13.0%	47.0%
Schauffler	Portland, Ore.	65	80.0%	—	20.0%
Thompson	Baltimore, U. of Md.	40	37.5%	22.5%	40.0%
Grier	Evanston	100	78.0%	8.0%	14.0%
Lisa	N. Y. Wel. Island	115	54.3%	—	45.7%
Our cases	Mpls. Gen'l.	102	65.6%	19.6%	14.8%
Average		915	64.6%	7.9%	27.3%

visited a criminal abortionist and was admitted with a catheter in situ. Our diagnosis was ruptured uterus and peritonitis. Operation revealed a ruptured cornual pregnancy with massive intraperitoneal hemorrhage.

It is interesting that our percentage of correct diagnoses was practically the same as the general average of the 915 cases shown in table number two.

Race, Age, Marital State and Parity.—There were one hundred white women, one colored and one Mexican. The age ranged from eighteen to forty-three years. Two were eighteen, one forty-one and three forty-three. Twenty-one were between twenty to twenty-four years, thirty-six between twenty-five to twenty-nine years, twenty-nine between thirty and thirty-four years, ten between thirty-five and thirty-nine years. The decade of twenty-five to thirty-four years showed the largest number, sixty-five or 63.7 per cent. Eighty-eight of the patients were married, nine were single and five were divorcees. Incidence in relation to parity shows the largest group, twenty-five, had been pregnant once previously, and thirteen had never been pregnant. The number of pregnancies ranged from two to eleven in the remaining sixty-four patients. Five patients in this group had been operated upon for ectopic pregnancies. In one operated elsewhere, the distal half of the tube was removed. At this operation

TABLE III. TIME ELAPSED SINCE LAST PREGNANCY
(Seventy-nine cases)

Years	No. Cases	Years	No. Cases	Years	No. Cases
1	17	6	5	12	1
2	14	7	6	13	1
3	13	8	2	15	1
4	10	9	4	17	1
5	4	10	0		
79 cases—100%		21 cases—Period of relative sterility ranging from 6-17 years.			

the ectopic involved the proximal portion of the same tube.

Relative Sterility.—Of eighty-nine patients with previous pregnancies, the time elapsed since the last pregnancy was recorded in the history in seventy-nine cases. This is shown in Table III.

A period of relative sterility is minimized by many authors. Its occurrence in 26.6 per cent of our cases ranging from six to seventeen years seems significant.

Duration of Pregnancy, Site and Condition.—One of these pregnancies was a secondary abdominal pregnancy at eight months. Another was an intraligamentous pregnancy at twenty weeks. The remainder were fourteen weeks or under in duration. Pregnancy occurred in the right tube fifty-nine times and forty-two times in the left. Of these, three were interstitial with two located on the left and one on the right. Wynne found an incidence of 1.5 per cent in 1,547 cases. Our incidence of 2.9 per cent is relatively high. Recently Lisa reported an incidence of 6.3 per cent in 115 cases studied. The history gave the portion of the tube involved in seventy-eight of the 100 cases operated upon: thirty-two were in the ampulla, seventeen in the isthmus and three were interstitial. The distal half was involved in ten cases, distal two-thirds in six, and the whole tube and ovary in five. The remaining five were intraligamentous. Rupture posteriorly between the sheaths of the broad ligaments is exceedingly rare. Its occurrence in five of our cases (6.4 per cent of seventy-eight cases) is extremely high.

At operation seventy-one were found ruptured,

TABLE IV. PREGNANCIES PREVIOUS TO THIS ECTOPIC (89 CASES—239 PREGNANCIES)

No. Pregnancies	Termination	Per Cent
170	Del. at or near term	71.13
49	Aborted	20.5
15	Premature	6.28
5	Previous Ectopics	2.09
239 pregnancies—100%		

thirteen unruptured and sixteen were tubal abortions.

Previous Laparotomy and Pelvic Infection.—Thirty-two (31.3 per cent) of our 102 patients had undergone thirty-eight previous laparotomies. Scheffey, et al, Schauffler and Wynia, and Langman and Goldblatt found a high incidence in their series. This finding in almost one-third of our cases supports the observation that previous lower abdominal surgery contributes to the incidence of ectopic pregnancy.

Previous pelvic infection as an etiologic factor has been stressed by many observers. Its incidence by history in thirteen patients (12.7 per cent) is low. Histologic examination confirmed the low history rate. Fourteen tubes involved in the ectopic on section showed salpingitis. Five tubes removed on the opposite side showed salpingitis. This shows an incidence of 18.6 verified histologically.

Serologic tests in sixty-five cases revealed latent syphilis in five patients.

Previous Abortion.—Of the eighty-nine parous women in this group twenty-four, or 27 per cent, had aborted spontaneously one or more times. The abortion rate in the hospital during the same period was 16.6 per cent. Termination of 239 pregnancies occurring in these eighty-nine women prior to this ectopic is indicated in Table IV.

The abortion rate for the hospital (16.6 per cent) is lower than that for ectopics (27 per cent). This is not significant. However, the number of fruitful pregnancies, 71.13 per cent, is approximately that of the general population, 80 per cent. Therefore, this finding in our study indicates the fault is not with the fertilized ovum but the site of implantation.

Temperature, Pulse, Blood Pressure (Admission).—Only 9 per cent of the patients had an admission temperature of 100° F. or above, the highest being 102.2° F. Eighteen per cent were admitted with subnormal temperatures, 95° to 98° F. Most of these were in shock. Pulse rate and blood pressure roughly followed the degree of shock and hemorrhage. Systolic blood pressure ranged from "not obtainable" to less than 100 in 35 per cent of the cases; 10 per cent showed a moderate hypertension and 55 per cent were normal. The pulse rate varied from 90 to 180 in 55 per cent.

Symptoms.—Pain was the predominant symptom, occurring in 97.1 per cent of the patients. Pain was absent in only three cases. The largest number complained of colicky or crampy pain, severe and intermittent in character. Sudden, severe, stabbing or lancinating pain was next in order of frequency. In one-fifth of the patients it was confined to the lower abdomen involving either one or both lower quadrants. In the others, pain was more generalized throughout the abdomen. Shoulder strap or costal margin pain was elicited in 31 per cent. Painful defecation was a complaint in fifteen per cent.

General symptoms in order of frequency were nausea and/or vomiting 41 per cent, fainting or feeling of faintness 32 per cent, weakness and dizziness 20 per cent. Other symptoms were dysuria, urgency or frequency 12.7 per cent, diarrhea 5.9 per cent. None of our patients presented the so-called "morning sickness" observed in uterine pregnancy.

Vaginal bleeding was the next most common symptom. It was present in 77 per cent of our cases. The various types of bleeding are best demonstrated in Table V.

Amenorrhea.—Seventy per cent of our patients missed one or more periods. In 6 per cent the onset of symptoms occurred when menses were due. Twenty-four patients missed no periods. Eight of these gave a history of some abnormality of the last menses, either a scantier flow or a shortened duration. Frequency of amenorrhea is shown more clearly in Table VI.

Abdominal and Pelvic Findings.—The most common sign on abdominal examination was tenderness which was elicited in seventy-nine

TABLE V. VAGINAL BLEEDING (100 CASES)

	No. Cases	Per Cent
No bleeding	23	23
Slight Spotting Scanty	30	30
Irregular and Intermittent	15	15
Continuous	18	18
Profuse	8	8
Like normal menses or prolonged	6	6

TABLE VI. MENSES (100 CASES)

Periods Missed	No. Cases	Per Cent
0	24	24
Due	6	6
1	33	33
2	29	29
3	6	6
5	1	1
8	1	1

cases. Distention was present in thirty-six cases, rebound tenderness in thirty-seven, rigidity in twenty-four, and evidence of free fluid in sixteen. An abdominal mass was palpated in ten instances. Adnexal mass or masses was the most frequent pelvic finding, palpated in sixty-four cases. Cul de sac fulness, crepitation or mass was noted in fifty-one instances. Other pelvic findings were painful tender cervix noted thirty-six times, purplish blue cervix nineteen, soft cervix eighteen, and Chadwick's sign positive three times. Cullen's sign was not observed. The corpus was described as normal in size in three-fourths of the cases and enlarged in one-fourth.

Abdominal distention, crampy colicky pain associated with nausea and vomiting, no menstrual abnormality and a previous laparotomy scar posed the problem of bowel obstruction in the differential diagnosis in nine cases. Flat x-ray plate of the abdomen ruled it out in eight cases. In the ninth, an x-ray diagnosis of paralytic ileus was made.

Blood Findings.—The blood pictures conformed to those generally observed by others. Details will be omitted. Initial hemoglobin readings and erythrocyte counts during or shortly after severe hemorrhage presented a false picture of the extent of blood depletion. Repeat examinations in forty-eight to seventy-two hours gave the true picture. In slightly less than one-third of our patients (33) the admission hemoglobin was under 60 per cent. Leukocyte counts were increased in the presence of hemorrhage and markedly so with massive hemorrhage. In forty-one cases the count was under 10,000. Sixty-one cases had counts ranging from 10,000 to 33,000. In thirteen patients (12.7 per cent) the leukocyte count was 20,000 or above. At operation in these the abdominal cavity was found filled with blood.

Erythrocyte counts were done in forty-three cases. The range was two to three and one-half million in twenty-one and three and one-half to four and one-half million in twenty-two. A falling red count and hemoglobin reading aided materially in diagnosis in several cases under prolonged observation. Recently a routine check of hemoglobin and erythrocytes on the third and seventh postoperative days has indicated a need for transfusion and prevented discharge from the hospital of patients with fairly severe secondary anemia.

Other Laboratory Examinations.—The Friedman test was done on sixteen patients; sedimentation rate on thirty-three; and the x-ray was used twenty-one times.

There were fourteen positive and two negative Friedman tests. In the two negatives, histologic examination of the tissue removed at operation showed necrotic, non-viable, degenerated villi.

The x-ray was of value in ruling out bowel obstruction. Lipiodol injection and x-ray in one case offered no aid. A metal contraceptive device was found imbedded in the myometrium by x-ray as an accidental finding in one instance.

The rate of blood sedimentation was determined in thirty-three instances. An attempt to correlate the finding with the amount of blood found in the abdominal cavity at operation and evidence of infection is not entirely satisfactory. In general, this showed that in twelve cases where the rate was markedly accelerated, the amount of blood found ranged from 800 c.c. to

TABLE VII. OPERATIVE PROCEDURES

Procedures other than removing pregnant tube	No. Cases
Oophorectomy	31
Resection ovarian cysts	8
Fundusectomy	2
Hysterectomy	1
Excision of other tube	8
Suspension	6
Partial resection of pregnant tube	5
Ligation bleeding point	1
Abdominal pregnancy	1
Appendectomy	7
Curettage	16

2,000 c.c. in eleven cases. In the twelfth case, salpingitis was found in the tube opposite the ectopic. In nine cases the rate was normal. Three of these were unruptured tubal pregnancies with no peritoneal insult. In five cases, the amount of blood found varied from 50 to 200 c.c. In the ninth case, several hundred cubic centimeters were found. There was no evidence of infection in any of the nine cases with normal rates. In the other twelve cases, the curves resembled those seen in chronic salpingitis. Findings were too confused to interpret properly but in general the hemorrhage was not recent.

Treatment.—These cases were cared for by eight attending staff members or under our supervision by the resident gynecologist. As would be expected there were individual variations in procedure. Immediate operation was the usual rule as soon as diagnosis was definite. Fifty-three were operated upon within one hour to less than twenty-four hours after admission. In four cases delay in operation was elected. Two ruptured under observation and went into severe shock. The outcome was favorable but their hospital stay was prolonged and they were submitted to unnecessary risk. When the diagnosis is definitely made, it is the author's opinion that expectant treatment has no place in the management of ectopic pregnancy. Removal of the affected tube only was the operation usually done. Concomitant surgery in this series is shown in

Table VII. Some of these procedures are not recommended.

Transfusion.—Autohemoclysis was not done in any of our cases. Transfusion was done before operation in four cases and during or after operation in the remainder. Forty-five of our patients received from one to several transfusions. Nineteen shock cases received forty-two transfusions and twenty-six non-shock cases received forty transfusions. The average amount was 1,400 c.c. for those in shock and 900 c.c. for those not in shock. Only three mild reactions ensued out of eighty-two transfusions administered. This is a reaction rate of 3.6 per cent. The reaction rate of the minor variety generally is estimated at from 5 to 10 per cent. In the three patients having reactions all were given single transfusions of 450 to 500 c.c. Eight patients received massive amounts of blood from 2,000 to 4,000 c.c. None of these had reactions.

From our experience the observation seems warranted that reactions due to presence of immune intragroup agglutinins and anti-Rh agglutinins recently emphasized in late pregnancy are not to be feared in early ectopic pregnancy.

Morbidity and Postoperative Complications.—Twenty patients (20 per cent) had a morbid postoperative course. The cause of pyrexia was undetermined in five. When incomplete peritoneal toilet (removal of old blood and clots only) was elected no increase in morbidity was noted. Colpopuncture four times and abdominal peritoneal aspiration once did not increase febrile reactions. This held true for preliminary curettage. Done sixteen times, curettage showed decidua in one case. The endometrial pattern in the remaining fifteen showed various phases, proliferative or secretory.

Complications alone or in combination were wound infections six, upper respiratory infection five, pneumonia two, cystitis two, pyelocystitis two, thrombophlebitis one, parotitis one and second degree burn one. Three wound infections associated with upper respiratory infection were slight; only one wound broke down.

Inhalation anesthesia was used in ninety cases. It is interesting to note that one of six cases done under spinal anesthesia had a morbid course and one of the two postoperative pneumonias occurred in one of the four patients operated upon

under local abdominal block anesthesia. This is a morbidity of 20 per cent for general anesthesia and 10 per cent for noninhalation anesthesia.

The average number of hospital days was 19.3 including pre-operative and postoperative days. Our high morbidity rate and a pre-operative hospital stay from one to three weeks in twenty-one instances accounts for the high average.

Summary and Conclusions

1. A survey of 102 ectopic pregnancies is presented. The percentage of cases admitted in shock is high (27.4 per cent).

2. Operative mortality was 1 per cent, total mortality 2.94 per cent. Prompt surgery even on moribund patients with availability of blood from the blood bank were factors in producing the low mortality.

3. Incorrect diagnoses can be materially lowered by proper interpretation of the history and evaluation of the clinical and laboratory findings.

4. A period of relative sterility from six to seventeen years occurring in 26.6 per cent of the cases seems significant.

5. A high incidence of previous lower abdominal surgery (31.3 per cent occurred. The incidence of previous pelvic infection (18.6 per cent) confirmed histologically is low.

6. Five recurrent ectopics (4.9 per cent) in this series is high. The occurrence of 6.4 per cent of intraligamentous pregnancies in the series is extremely high.

7. Fruitful pregnancies in the group prior to this ectopic approximates the general population rate. This indicates the fault is not with the ovum but site of implantation.

8. Abdominal pain was the predominant symptom. Shoulder strap or costal margin pain was

elicited in a high per cent (31 per cent) of the patients.

9. Abdominal distention in thirty-six cases is much higher than generally reported by others.

10. Routine repeat hemoglobin and erythrocyte determinations proved valuable.

11. Sedimentation rate was markedly accelerated in cases with massive hemorrhage.

12. A transfusion reaction rate of the minor variety of 3.6 per cent compared to the generally estimated rate of 5 to 10 per cent shows that ectopics tolerate transfusion well.

13. Reactions due to presence of immune intra-group agglutinins and anti-Rh agglutinins recently emphasized in late pregnancy would seem not to be feared in early ectopic pregnancy.

14. Two cases of tubal edometriosis were demonstrated histologically. Abdominal endometriosis in the upper angle of a previous operative scar was observed in one case.

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HORMONES ARE ENGINEERS

Sex hormones, or gland secretions, act as "engineers" in directing the development of unborn animals, according to Dr. Vera Danchakoff of the University of Lausanne, Switzerland.

Dr. Danchakoff worked with a considerable range of animals, including mammals, birds, fishes and amphibians. In general, she found it possible to change the direction of sexual development by injecting the hormone of the opposite sex. That is, if the developing embryo were destined to become a female (which can be told by microscopic examination of its cell chromosomes), it could be induced to develop the external sex organs of a male by sufficiently heavy doses of male sex hormone. The opposite change could be produced by female sex hormone in a genetically male embryo.—*Science News Letter*, April 11, 1942.

THE FATE OF THE MAJOR SURGICAL CASE IN THE SMALL HOSPITAL

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APPROXIMATELY 27 per cent of active general hospital beds in the United States are located in hospitals of 100-bed capacity or less;¹ in the state of Minnesota 39 per cent of active general hospital beds are in this group of smaller hospitals. Although a few smaller hospitals are located in the large cities or suburban districts of large cities, the majority of these hospitals serve the small cities, towns, and rural communities of the nation. An untold number of patients requiring major surgical operations are treated in these small hospitals. The fate of these patients is little known, for the surgeon in a small community is seldom able to collect a large series of cases that he is justified in reporting to the profession, and, in smaller groups, one unfortunate case will unduly distort the statistical results.

It seems that a general survey of the quantity and quality of the major surgery performed in a small hospital in a fairly representative community should be of interest to the profession in general and of particular interest to those organizations that have done so much to obtain and maintain a high standard in the practice of surgery. It seems likely, too, that the ever-increasing number of young men who are receiving special surgical training should be interested in the scope of surgery away from their centers of training. Therefore, a six-year survey of major surgical cases in a small hospital has been made in an endeavor to ascertain the type of surgery and the fate of the patients under such conditions.

This survey includes all major general surgical operations performed by members of the Austin Clinic in the St. Olaf Hospital, Austin, Minnesota, for the six-year period ending March 1, 1942. These cases represent a majority of the major surgery performed in this hospital. Major otolaryngological surgery and ophthalmological surgery have not been included in this survey. In the cases reported operations were performed by one of four men: three general surgeons, all of whom have now been qualified by the American Board of Surgery, and one general practitioner who has limited his work to emergency cases. It should be noted that the St. Olaf Hospital has been enlarged and now exceeds the 100-bed capacity limit established for this survey. This hospital serves the city of Austin, which has a pop-

ulation of approximately 21,000, and smaller towns and rural districts within a radius of thirty-five miles.

A general survey of the 785 major surgical procedures included in this report is given in Table I. An attempt has been made to include only major cases, although the differentiation between "major" and "minor" cases is difficult at times. Thoracotomy and drainage for empyema thoracis has been considered as a major procedure, for example, although the actual operation may be less different technically than a high saphenous ligation, a procedure which is distinctly "minor" in character. Multiple-stage operations have been listed only once in this table, and combined operations, such as cholecystectomy and appendectomy, have been listed only under the title of the primary procedure.

The hospital mortality in this series of 785 cases was 3.9 per cent. A "corrected mortality" of approximately 3 per cent may be obtained by eliminating those deaths which occurred one month or longer after operation and which were not directly due to the operation. This is a reasonably satisfactory record. Nevertheless, there were a number of avoidable deaths in this series (Table II). These were due largely to errors in judgment or errors in diagnosis, although there was one death due to anesthesia.

A consideration of some of the various operations and specific surgical diseases covered by this survey is of interest. The most common disease requiring surgical treatment is appendicitis. In this series, 333 appendectomies for non-perforative appendicitis were performed without a death. The surgical mortality in thirty-five cases of perforative appendicitis was 8.6 per cent. There have been no deaths in the last twenty-two operative cases of perforative appendicitis, although one patient who had an incision and drainage of a localized purulent collection in the left lower quadrant died of generalized peritonitis which may have been appendiceal in origin. Two other patients, who were admitted in the advanced stages of peritonitis, were treated conservatively as probable cases of perforative appendicitis; autopsy in one patient revealed the presence of acute hemorrhagic pancreatitis.

MAJOR SURGICAL CASE IN SMALL HOSPITAL—ANDERSON

TABLE I. SURVEY OF OPERATIVE PROCEDURES

Type of Operative Procedure	Total Cases	Hospital Deaths	Type of Operative Procedure	Total Cases	Hospital Deaths
Craniotomy (extradural hematoma—depressed skull fractures)	3	0	Incision and drainage, perforative appendicitis	7	2
Thyroidectomy	15	1	Cecostomy for acute obstruction, large bowel	5	3
Cervico-thoracic ganglionectomy	1	0	Colostomy, palliative	6	1
Radical excision, carcinoma of the sub-maxillary gland	1	0	Colon resections (ileocolicectomy, combined recto-sigmoid resections, etc.)	9	2
Tracheotomy	2	1	Sigmoidotomy, benign polyps	3	0
Thoracotomy and drainage for empyema	6	1	Closure of fecal fistula	2	0
Resection, chondrosarcoma of ribs and pleura	1	0	Suprapubic cystostomy and prostatectomy	4	2
1st stage drainage, subdiaphragmatic abscess	1	1	Radical penectomy for carcinoma	1	0
Diagnostic abdominal exploration	9	1	Nephrectomy for hypernephroma	1	0
Subtotal gastric resection	3	1	Pelvic plastic and uretero-nephrostomy for non-calculus hydronephrosis	1	0
Gastro-enterostomy	3	0	Myomectomy	1	0
Closure, perforated peptic ulcer	9	1	Hysterectomy	43	1
Splenectomy	3	1	Vaginal plastic-suspension operations, etc.	38	0
Pancreatico-duodenectomy, 1st stage, for carcinoma of the ampulla Vater	1	1	Ectopic pregnancy, salpingectomy	5	0
Cholecystostomy	6	1	Salpingo-oophorectomy, elective	11	0
Cholecystectomy	48	1	Abdominal hysterotomy and sterilization	2	0
Cholecystostomy and choledochostomy	3	1	Ovarian cystectomy	17	0
Cholecystectomy and choledochostomy	5	0	Cesarean section	4	0
Acute obstruction, small intestine:			Elective herniorrhaphy	67	0
Due to postoperative adhesions	9	0	Femoral (8)		
Due to strangulated hernia	14	2	Inguinal (50)		
Due to intussusception	5	0	Umbilical (3)		
Due to gallstone ileus	1	0	Incisional (6)		
Small bowel resections, non-obstructed	2	0	Breast amputations for carcinoma	10	0
Ileostomy, for partial obstruction	1	1	Open reductions, major fractures	9	0
Incision and drainage, intra-abdominal abscess (non-appendiceal)	3	1	Internal fixation, intracapsular fractures of the femur	10	1
Elective appendectomy, recurrent appendicitis	48	0	Sequestrectomy and drainage, osteomyelitis	7	0
Acute non-perforative appendicitis, appendectomy	285	0	Amputations, major	5	2
Appendectomy and drainage, perforative appendicitis	28	1	Resection of scapula, partial, for osteochondroma	1	0

There were two deaths in twenty-nine cases of acute obstruction of the small bowel, a mortality of 6.9 per cent. The mortality in sixty-two operations on the gallbladder and biliary tract was 4.8 per cent; in forty-three total and subtotal hysterectomies, there was one death from pulmonary embolism, a mortality rate of 2.3 per cent.

There have been twenty-two major surgical procedures in the past two and a half years for the radical cure of cancer. These procedures include gastric and colon resections, radical mastectomies, total hysterectomies for carcinoma of the fundus uteri, a nephrectomy for hypernephroma and other types of major surgery. The mortality in this group was 13.6 per cent. The mortality was approximately 27 per cent in eighteen major procedures for the diagnostic and palliative treatment of malignancy. There was

one opportunity to perform a resection of the duodenum, common duct and head of the pancreas for carcinoma of the duodenum at the ampulla of Vater. There have been only sixty-four operations of this type reported to date.² This patient died of chronic nephritis and uremia on the nineteenth postoperative day. An autopsy revealed no technical errors in the operative procedure, but the presence of early liver metastasis had not been detected clinically.

Attention is called to the fact that a few of the operative procedures in this series are not strictly within the scope of general surgery. The surgeon in a small community is occasionally called upon to perform an emergency operation, such as a cranial decompression, that he would otherwise gladly refer to a surgeon specifically qualified in one of the special fields of surgery.

MAJOR SURGICAL CASE IN SMALL HOSPITAL—ANDERSON

TABLE II

Patient Sex-Age	Operative Diagnosis	Operation	Primary Cause of Death	Interval	Patient Sex-Age	Operative Diagnosis	Operation	Primary Cause of Death	Interval
J.C. WM 84	Gangrene of the gall bladder with perforation—common duct calculus	Cholecystostomy and choledochostomy	Broncho-pneumonia	9 days	E.U. WM 51	Carcinoma of larynx	Tracheotomy	Carcinoma with metastasis	7 days
M.A. WF 56	Chronic cholecystitis. Acute pancreatitis	Cholecystectomy	Acute pancreatitis	13 days	A.H. WM 69	Carcinoma of the stomach	Gastric resection	Aspiration pneumonia	1 month
G.E. WM 59	Gangrenous cholecystitis	Cholecystostomy	Broncho-pneumonia	10 days	E.O. WM 40	Acute perforated duodenal ulcer	Closure of perforation	Peritonitis	6 days
E.S. WM 48	Acute appendicitis with perforation	Incision and drainage	Peritonitis	11 days	O.O. WM 77	Empyema thoracis	Closed drainage	Coronary occlusion	2½ months
E.Y. WM 26	Acute appendicitis with perforation	Appendectomy and drainage	Peritonitis	3 days	H.A. WM 67	Chronic sub-diaphragmatic abscess	Drainage	Coronary occlusion	7 days
G.B. WF 17	Acute appendicitis with perforation	Incision and drainage	Peritonitis	8 days	J.J. WF 86	Intracapsular fracture of femur	Internal fixation with Moore pins	Broncho-pneumonia	5 days
A.K. WF	Peritonitis, cause undetermined—possible appendicitis	Incision and drainage of abscess	Peritonitis	7 days	O.A. WM 50	Traumatic leg amputation	Amputation	Shock	4 hours
T.L. WM 76	Volvulus of cecum with gangrene	Cecostomy	Uremia—Peritonitis	4 days	S.D. WF 66	Arteriosclerotic gangrene of leg	Amputation	Not recorded	2 months
G.B. WM 67	Acute obstruction, large bowel, due to carcinoma	Cecostomy	Peritonitis	5 days	G.L. WF 58	Traumatic rupture of spleen	Splenectomy	Shock	in OR
W.A. WF 59	Carcinoma of the cervix with secondary carcinoma of the sigmoid—obstruction	Colostomy	Carcinoma, general metastasis	6 weeks	L.I. WF 39	Fibromyoma uteri	Hysterectomy	Pulmonary embolism	9 days
T.C. WM 82	Carcinoma of the sigmoid with peritoneal metastasis	Ileostomy	Peritoneal carcinomatosis	1 month	R.K. WM 64	Carcinoma of the duodenum at the ampulla Vater	Pancreatico-duodenectomy, 1st stage	Uremia	19 days
C.P. WF 76	Carcinoma of the right colon	Ileocelectomy, 1st stage	Broncho-pneumonia and peritonitis	5 days	W.S. WM 61	Carcinoma of the prostate, recurrent, with hemorrhage	Cystostomy	Carcinoma, general metastasis	6 months
S.F. WF 64	Volvulus of the cecum with gangrene	Ileocelectomy, 2nd stage	B. Welchii septicemia	12 days (after 2nd stage)	B.B. WM 77	Carcinoma of the bladder with hemorrhage	Cystostomy	Coronary occlusion	3 days
T.S. WF 65	Carcinoma of the ovary with peritoneal metastasis	Exploration	Carcinomatosis	17 days	H.H. WM 53	Hyperthyroidism	Thyroidectomy	Operative shock	20 min.
					E.McF WF 86	Carcinoma of ovary with abdominal carcinomatosis and obstruction	Cecostomy	Carcinomatosis	11 days
					A.B. WF 84	Strangulated femoral hernia	Resection of gangrenous bowel	Strangulated hernia	1 day
					B.E. WF 45	Incarcerated incisional hernia	None	Spinal anesthesia	in OR

In elective cases, those patients who required orthopedic or neuro-surgical operations, extensive or delicate plastic procedures, transurethral resection, and similar special treatment beyond the scope of the general surgeon, were referred to nearby medical centers.

Summary

A survey has been made of the major surgical cases treated by members of the Austin Clinic in the St. Olaf Hospital in Austin over a six-year period. This survey has been presented in order to give a general idea of the scope of surgery in a small community.

The trend of medical education in the past few years has been toward the elimination of the self-trained and often self-named surgeon. Post-graduate teaching courses and surgical residencies

have been increased in order to afford adequate surgical training to a larger group of medical graduates. It is logical to assume, however, that the standard of surgery throughout the nation will not be proportionately increased unless a fair number of well-trained general surgeons elect to practice in smaller communities. This report is offered as a basis for an estimation of the quantity and quality of major surgery which is encountered in a smaller community.

The author wishes to express his appreciation to Dr. U. Schuyler Anderson, of Minneapolis, Minnesota, and Dr. Francis E. Kibler, of Colorado Springs, Colorado, for permission to report their cases and for their kind coöperation.

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ANESTHESIA IN THE SMALL HOSPITAL

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THE selection of the anesthetic agent to be employed in an operative procedure is the responsibility and privilege of the surgeon. In deciding on the anesthesia of choice he may be advised by the anesthetist, and he may be cognizant of the wishes of the patient, but with his knowledge of the physical condition of the patient, gained from a carefully taken history and a physical examination thoroughly performed, and with the requirements of the proposed surgery in mind, the surgeon should be able to select the most suitable form of anesthesia from several at his command.

The surgeon who leaves this decision to the anesthetist alone, or who accepts the anesthesia which is given most conveniently, or who is thinking entirely of saving time, is placing himself at a disadvantage before the actual operation begins, and may be causing great deprivations to his patient. The operator who is accustomed to but one method of anesthesia is not accepting the opportunities which medical progress has made possible.

The recognition of the importance of anesthesia is manifested by the growth of the specialty of anesthesiology and by the establishment of departments of anesthesia in the large medical centers. In some measure this specialty of anesthesiology is the product of convenience and interest, as are other specialties, and does not indicate that the small institution without physician-anesthetist cannot offer good and proper anesthesia. It has been stated recently that all anesthetics should be administered by physician-anesthetists. This has been disconcerting to the small institution where physicians who devote their full time to anesthesia are not available. The experience of many, including ourselves, is that properly trained nurse-anesthetists are absolutely reliable and can administer inhalation anesthesia entirely satisfactorily. The employment of nurse-anesthetists in all cases is much preferable to the use of a physician who has had little experience and infrequent practice in the administration of anesthesia.

TABLE I. SURGICAL PROCEDURES IN WHICH
NITROUS OXIDE-OXYGEN-ETHER COMBINATION
WAS EMPLOYED AS THE ANESTHETIC
AGENT

	No. cases
Surgery of the gall bladder and bile ducts.....	23
Appendectomy	39
Abdominal pelvic operations.....	28
Operations on the colon.....	1
Operations on stomach and duodenum.....	7
Kidney operations.....	2
Cesarean section.....	3
Operations on the breast.....	5
Miscellaneous	9
	117

An analysis of our cases at the Næve Hospital during the past eighteen months has been of considerable interest. Of 254 patients submitted to operation, 117 (46 per cent) have received inhalation anesthesia, usually nitrous oxide, oxygen, and ether. So skillfully has the anesthetic been administered by our nurse-anesthetists* that in not one instance have we been concerned about the anesthetic during the course of the operation, and there have been no deaths attributable to the anesthetic. There have been few complications in any way related to the anesthetic and only one case of atelectasis. In this instance the mucous plug was removed through the bronchoscope and the patient made a prompt and complete recovery.

Although we have been prepared to insert an intratracheal tube if necessary, the need for this has not arisen. It is possible that we are overlooking some of the advantages of the intratracheal tube but when the airway is adequate and relaxation satisfactory we have seen no reason to place a tube in the trachea. The necessity of an intratracheal tube in certain conditions is incontestable and the availability of a tube and a laryngoscope may occasionally save a life. Every operating room should possess facilities for inserting an intratracheal tube.

For major surgery inhalation anesthesia is still probably the safest in the majority of cases. One reason for this is that this method is the oldest and is the best understood by physicians and

Presented at the meeting of the staff, Næve Hospital, Albert Lea, Minnesota, April 13, 1942.

*Miss Mary King and Miss Mabel Peterson.

anesthetists. There are contradictions to inhalation anesthesia, however, and there are desirable features of anesthesia which an inhalation agent does not afford. In such instances one must employ another method of producing anesthesia.

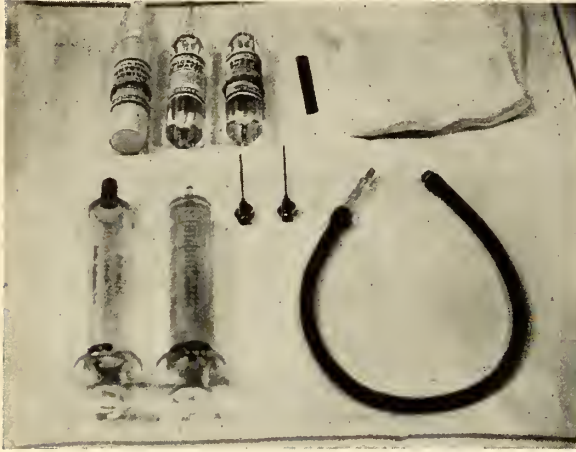


Fig. 1. Equipment used for preparation and administration of intravenous anesthesia: (1) One ampule of pentothal sodium; (2) two 20 c.c. ampules of sterile distilled water; (3) file; (4) sponges; (5) two needles No. 20 gauge; (6) two 20 c.c. syringes. The rubber tubing is necessary only when the Rudder syringe holder is used.

Intravenous Anesthesia

Pentothal sodium has been administered intravenously in 2.5 per cent solution seventy-four times, excluding uses of this agent outside of the operating room. We find that we are using this form of anesthesia more and more frequently and for operative procedures of longer duration. The use of pentothal sodium has received such wide publicity that there is little that we can add from our experience except to point out that it is a splendid agent for use in the small hospital. The growing popularity of this anesthetic in our hospital is in keeping with the trend in larger institutions.

TABLE II. SURGICAL PROCEDURES IN WHICH PENTOTHAL SODIUM WAS EMPLOYED

	No. cases
Gynecological	19
Induction or supplement to other agents.....	8
Draining abscesses.....	7
Removal of breast tumors.....	5
Reduction fractures and dislocations.....	15
Miscellaneous	20
	74

Very little equipment is necessary for the preparation and administration of this drug. The equipment which we use has been reduced to a

minimum and is shown in Figure 1. A 5 per cent solution is obtained by drawing 20 c.c. of distilled water into a syringe and adding it to the vial containing one gram of pentothal sodium. The solution is thoroughly mixed and 10 c.c. is



Fig. 2. Pentothal sodium anesthesia administered with the Rudder syringe holder and the BLB mask.

drawn into each of two syringes. Into each of these syringes is then drawn an additional 10 c.c. of distilled water. The plunger of the syringe is drawn back farther than is necessary and the syringe then shaken vigorously. Each syringe now contains 20 c.c. of a 2.5 per cent solution of Pentothal Sodium which is ready for administration.

It is important to perform a "clean" venipuncture. Extravasation of the solution into the tissues, although usually not serious, may cause the patient unnecessary pain and delay the induction. About 5 c.c. of the solution is then injected slowly while the patient counts, and this amount is usually sufficient to produce unconsciousness. The depth of respiration is carefully observed. To maintain the proper depth of anesthesia, the anesthetic solution is injected intermittently in small amounts as indicated. It is felt that the administration of an intravenous anesthetic, if carefully and skillfully performed, is as much under control as is the administration of inhalation anesthesia.

Recently we have used pentothal sodium in combination with oxygen very satisfactorily for major abdominal surgery. The Rudder syringe holder is employed and the anesthetist is able to administer the anesthetic and to watch the condition of the patient just as carefully as in inhalation anesthetics. Following the suggestion of Dr.

TABLE III. SURGICAL PROCEDURES IN WHICH SPINAL ANESTHESIA WAS EMPLOYED

	No. Cases
Appendectomy.....	21
Herniorraphy.....	12
Vaginal hysterectomy.....	7
Vaginal repair.....	6
Operations on the colon.....	3
Closure perforated duodenal ulcer.....	1
Anorectal procedures.....	8
Cesarean section.....	2
Miscellaneous.....	3
	63

C. H. Watt, of Thomasville, Georgia, a small quantity of procaine hydrochloride has been injected in the skin before making the incision. Relaxation has been excellent, and the patients have benefited by the absence of nausea and vomiting. Dr. Watt is of the opinion that this pentothal sodium-oxygen combination allows a more rapid recovery and shortens postoperative hospitalization.

Spinal Anesthesia

As stated by Blalock, the most important factors which govern the choice of an anesthetic agent are the safety of the patient and the effectiveness of the anesthesia for the operation proposed. It has been said that no anesthetic facilitates the work of the surgeon more nicely, and yet is more hazardous to the patient, than spinal anesthesia. Graham and Brown are of the opinion that a surgeon is guilty of malpractice if he operates on a patient with intestinal obstruction under inhalation anesthesia if adequate facilities for spinal anesthesia are available, and Masson has said that he would employ spinal anesthesia more frequently if he did not have a good anesthesiologist. There is a growing enthusiasm for spinal anesthesia which is occasionally dampened by reports of serious complications, and even fatalities. The dangers associated with the employment of a spinal anesthetic should not be minimized and the actual administration of the anesthetic should be undertaken only by competent persons.

It is desirable to restrict the use of spinal anesthesia to operations below the diaphragm and the danger is decreased if it is still further limited to operations below the umbilicus. In patients with emphysema, bronchiectasis, active pulmonary tuberculosis, asthma, chronic bronchitis

TABLE IV. DOSAGE AND DILUTION OF METYCAINE IN SPINAL ANESTHESIA†

Operation	Injection between lumbar vertebra	Metycaine dose (Mgm.)	Total volume anesthetic solution and spinal fluid (c.c.)*
Appendectomy	2 and 3	100—150	3
Herniorraphy	2 and 3	100—150	2.5—3
Vaginal hysterectomy	2 and 3	110—150	3
Perineal repair	3 and 4	100	2
Anorectal surgery	3 and 4	50— 75	1.5

†Modified from Stein and Tovell.

*Rate of injection not greater than 0.5 c.c. per second.

and acute upper respiratory infections spinal anesthesia is particularly useful. In diabetic patients it is important to interfere as little as possible with the dietary regime, and spinal anesthesia affords a quick recovery. Finally, spinal anesthesia is useful in operative procedures which require complete relaxation, and in the repair of hernias, removal of large pelvic tumors, surgery of the colon, and amputation of a lower extremity.

As a general rule it has been our custom to reserve the use of spinal anesthesia for surgery of the lower abdomen, perineum, and lower extremities. In the occasional case, if conditions demand, spinal anesthesia is employed for operations on the upper abdomen. It is my impression that in producing spinal anesthesia complete familiarity with one anesthetic agent, gained by continual use of that agent, is preferable to the occasional use of one of several drugs. I have used metycaine exclusively and with complete satisfaction. The dose is somewhat smaller than that of procaine and never exceeds one milligram per pound of body weight. The largest dose which we found necessary was 175 mgm. The amounts which we customarily use, and the dilutions necessary, are tabulated according to operations in Table IV.

An attempt has been made to simplify the administration of a spinal anesthetic and the equipment necessary is shown in the illustration. The use of a punch and a guide for the needle seems unnecessary to me, and only traumatizes the tissues, resulting in severe backache in many cases.

A spinal puncture needle of small calibre (No. 21 gauge) is used routinely and in no case has it been impossible to obtain spinal fluid and to inject the anesthetic. Ephedrine sulphate, 25 to 50 mgm., is given subcutaneously in each case



Fig. 3. Tray for spinal anesthesia: (1) Drape sheet; (2) file; (3) ampule ephedrine sulphate 50 mgm.; (4) ampule metylocaine hydrochloride, 2 c.c., 10 per cent solution; (5) solution procaine hydrochloride 1 per cent; (6) tincture of iodine; (7) sponges; (8) Luer-Lok syringe; (9) three needles—hypodermic, 2 inch, No. 21 gauge spinal puncture needle; (10) hemostat.

and in only one instance was the fall in blood pressure sufficient to necessitate another injection of the drug.

In our small group of cases we have used spinal anesthesia sixty-three times. In sixty-one patients the anesthesia produced was entirely satisfactory. In one case insufficient anesthesia was obtained and it was necessary to perform the operation under local procaine infiltration anesthesia supplemented with pentothal sodium given intravenously. In another case the anesthesia produced was only partial. There was one case in which the patient complained of backache and one case in which headache followed the anesthetic. Both of these complaints were no longer existent when the patients were dismissed from the hospital.

Although we have used sacral block anesthesia for anorectal surgery, we have come to rely on spinal anesthesia for surgery in this field. Sacral block anesthesia is unquestionably excellent but

it is sometimes difficult to administer and we feel that the seven punctures necessary are more painful to the patient than the one required for spinal anesthesia. We continue to employ sacral block anesthesia frequently enough to keep familiar with the technique, and in those patients who object to spinal injections. For ano-rectal operations we have found small doses of metylocaine injected in the third lumbar interspace, and in weak dilutions, to give perfect anesthesia.

Conclusion

It is imperative that we give adequate attention to, rather than minimize, the importance of anesthesia. The administration of the anesthetic should be considered an integral part of the surgical procedure, the success of the latter depending to a great degree on the choice of the anesthetic agent and the skill with which it is administered. Although the great advances in the art of anesthesia will probably be made by the anesthesiologists, the surgeon should be aware of the progress that is being made and he should be able to administer the special forms of anesthesia. In the small hospital, general inhalation, intravenous, local, spinal and sacral block anesthesia should be available, and facilities for insertion of an intratracheal tube are highly desirable.

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PLANT HORMONE STIMULATES

A hitherto unidentified sex hormone produced by plants, strongly stimulating sexual maturation in female animals, has been reported by Dr. Eliseo T. Gomez, U. S. Department of Agriculture physiologist. Extracts from freshly cut or frozen young oat and corn plants, Dr. Gomez found, would produce evidence of sexual maturity when fed to female rats only three weeks old, which did not appear in untreated "control" animals until they were a good eight days older. Puppies showed similar signs of precocious maturity when they were nursed by mothers (or foster mothers) receiving the plant extracts in their diets. —*Science News Letter*, April 11, 1942.

RURAL NURSING PROBLEMS

LOUISE NEWCOMBE

Duluth, Minnesota

THE problems of rural and urban nursing are not very different. In each it is of most importance to see that the patient receives the best care possible, and this calls for nurses not only for bedside nursing, but for specialized departments, as Operating Rooms, Obstetrics, Pediatrics and for supervision and teaching, if there is a nursing school. Sometimes the care of the patient and the teaching of the student seem to conflict somewhat, and it is a problem to see that each gets its fair share. There is also, and always, the problem of keeping expenses within the budget, as nursing schools, unlike other schools and colleges, receive no aid from the government or the public. I wish to qualify that by saying that just recently Federal aid has been made available for certain schools.

For some time we have been hearing of a graduate nurse shortage and sometimes the Board of Nurses Examiners is accused of having closed the smaller schools. As a matter of fact, the schools closed by our Board have been very, very few. It is true that at one time, about eighteen to twenty years ago, we had sixty-three accredited schools in Minnesota, and now only twenty-nine, but the economic situation entered into this picture. During the last war we had a serious nurse shortage; hospitals were urged to increase their student enrollment, and did so; and then you will remember that along about 1929, ten to twelve years ago, there appeared more or less suddenly to be a great surplus of graduate nurses and too many students in the schools. This was of course coincident with the general depression and, while nurses were not the only group that suffered, nevertheless in some of the eastern cities nurses were in the bread lines, and considerable attention was drawn to the matter. It was discovered also that nurses who had received a broader basic nursing education fared better, because more fields were open to them, while those whose nursing education had been limited found it difficult to get employment.

All hospitals were urged to curtail enrollment and employ their own graduates, and nurses could

be had for as little as \$20, \$25, \$40 per month and even for maintenance only, in some cases. So it was only natural and logical that many smaller hospitals closed their schools, because it was cheaper and easier to staff their hospitals with their graduates. Patients and doctors liked the graduate service and the graduates liked the regular hours and steady work. This is really why we have fewer schools in Minnesota, and I wish to emphasize that this was by no means confined to Minnesota, but was general in the United States.

Then once again the economic pendulum swung and we emerged from the depression; work became plentiful; salaries and wages started going up; hours of work were shortened, and we began to hear of difficulty in getting graduate nurses; and this again was nationwide and was not limited to the nursing profession alone.

It always takes time to realize a "trend" and also more time to decide what to do about it. Hospitals were afraid, for various reasons, to increase their student body too rapidly and found difficulty in meeting the rising costs.

Nurses had learned much during the depression too. No longer were they willing to work long hours, and the eight-hour day came into effect, even for private duty nurses. They wanted higher wages too and got them, but slowly. Student applicants also wanted to be very sure they were going to receive an adequate nursing education which would fit them to hold their own in the economic world. In short, they were all looking for their share in the more abundant life we were hearing considerable about at that time.

Hospital ward aides came into use about that time, but more of them later.

Student enrollment has increased steadily. From January 1, 1937, to January 1, 1942, there was an increase of 22 per cent in Minnesota. Graduate registration has risen also. From January 1, 1937, to January 1, 1942, the increase was 47.3 per cent in Minnesota. Why then are we short today? For the following reasons:

1. Public Health Nursing (Jan. 1937 = 19,939; Jan. 1, 1941 = 23,705 — nearly 4,000 more).

Read before the meeting on Interprofessional Relations held at St. Cloud, Minnesota, April 23, 1942.

2. Industrial Nursing (Jan. 1937 = 2,203; Jan. 1, 1941 = 3,092—nearly 1,000 more). I am sure this number has increased since then due to our defense industries.

3. Airlines and passenger trains—stewardesses, new field attractive, short hours, good pay, travel, meeting people, et cetera.

4. Hospitals put in an eight-hour day and six-day week, in line with other branches of industry, and this has taken a good many more.

5. Marriages increased with improved economic conditions. Some married nurses work, but others do not.

6. Lastly, the war, Red Cross and federal services claim many. There are no definite figures available as this is a military secret but there were approximately 11,000 on duty sometime ago.

Figures from Red Cross for the United States:

1. Transfers from First Reserve (go anywhere) to Second Reserve (active, available, but not for military duty, which means not available for armed forces) from December 4, 1941, through January and February, 1942, due to marriage were 863, an average of 288, almost 300 per month.

2. Transfers as above, for the same period for all reasons were 1,773, an average of 591 per month (almost 600).

3. Transfers from First to Second Reserve for twenty-nine months prior to Pearl Harbor were 400 per month.

Demand for nurses has increased tremendously since the United States entered the war. Our men have been sent to the four corners of the world and of course our doctors and nurses follow our fighting men. Six nurses per 1,000 men are required in the Army and three nurses per 1,000 men in the Navy; and seven doctors per 1,000 men in the Army and six doctors per 1,000 men in the Navy; and 1.5 dentists for both. The National Defense Council meeting in Chicago recently said 55,000 new student nurses must be recruited this year and 65,000 next year. As our usual national admissions equal about 35,000, we need about 20,000 more this year. The Army Nurse Corps needs 10,000 more nurses before July 1. The Army Nurse Corps needs 31,000 nurses to be on duty by the beginning of next fiscal year, July, 1942.

To blame anyone for the shortage, in view of all the above, would of course be unfair. It is just one of those economic cycles or situations which we all have to face, and face together, and try to find a solution for. Fortunately, in Minnesota, the medical, hospital and nursing groups

have always had good working relationships, and I have no doubt at all, that working together, we will find a way out.

What to Do

1. Increase student enrollment in existing schools. This is being done, as I have told you. Federal funds have recently been made available for schools now in operation, which can meet the government requirements and wish to do so, for the one purpose of increasing the number of nurses. Our national government stresses the fact that standards *not* be lowered.

2. Refresher Courses to older, inactive nurses. This is being done in many places, and with good success, and these nurses promise to be available to help when needed.

3. Possibly reopen schools now closed, if the hospitals desire.

4. Ward aides used for non-nursing duties and also the American Red Cross Volunteer Nurses Aides and WPA and NYA Auxiliary Hospital Workers.

Procedure If Hospital Wishes to Reopen Closed School

1. Should have such facilities and nursing program as will prepare their graduates to meet requirements for state registration, as well as the requirements of the Red Cross Nursing Service, since nurses enter the Army and Navy Nursing Services through the avenue of the Red Cross.

Previously the Red Cross had under consideration requiring daily patient averages of fifteen surgical, fifteen medical, ten obstetric in segregated service, eight to ten pediatric segregated service, and deficiencies made up by affiliation. The Red Cross will now accept for the duration of this emergency a daily minimum average of fifty, with deficiencies made up by affiliation.

The Red Cross requirements explain in brief many of the requirements of the Nurses State Board of Examiners. It must also be remembered that graduate nurses wish to be eligible to work in any state, if they choose. California requires that all nurses graduating since January, 1941, have had a minimum of six weeks in contagion or tuberculosis training. This is very difficult to meet, but they will accept venereal nursing as a small part.

Minnesota's educational requirement is only two years of high school by law, but the schools themselves have for years required high school graduation. Only one school requires two years of college. Our Board does not, and could not, require more than our law permits. Most states

do require high school and therefore our nurses need to have had full high school to be able to take advanced work or postgraduate courses, as well as to be able to register in other states.

Affiliation is required when clinical service is inadequate. Our Board has always recommended that the students should return to the home school after affiliation for at least the last six months, and as much longer as possible. Schools have always appeared to fear that their students would not be satisfied when they came back. Hospitals in rural districts often complain that their nurses do not wish to stay in the country after being in the city on affiliation. Well, isn't it natural they should seek the social and cultural advantages of the city just as other workers do? After all, young nurses are just like other young women, and where does "girl meet boy?" Someone once said young nurses were "mobile maidens meditating matrimony."

Our Board is the logical accrediting agency—there is no other—and, when the state places on us the responsibility to determine whether a graduate nurse is eligible for registration, it goes without saying that we have to know considerable about the hospital school from which she came. Just as in the case of accrediting hospitals for the teaching of interns, many requirements must be met.

Our Board very earnestly and sincerely wishes to be of help to all schools now operating and also to those hospitals which may wish to open schools. However, we are handicapped in this, as our law does not permit traveling expenses to any Board member for visiting schools, and at present we have no Educational Director. So, if hospitals wish our advice, it would be necessary that they pay our traveling expenses, and we would give our own time to it for the present.

When a school wishes to open, our procedure is to ask for an annual report for the previous year, showing daily averages in the clinical services, also the qualifications of the nursing staff who will be doing the teaching of the students.

At present, we are studying the clinical services in all our schools, trying to discover untapped resources which might be used for affiliations for smaller schools or for other schools which may wish to enrich their own course. For the past two years, we have been studying the adequacy

of clinical services in our existing schools, to determine if affiliation is necessary.

When a school wishes to open, they should send us in writing an outline of what they propose to do. Of course, they can make no promise to prospective students that the school will certainly be accredited, but it must be in operation as a going concern for not less than six months, as paper plans do not always materialize as expected by those who make them.

There is one more point I wish to mention—that of ward aides, nurses aides or subsidiary workers (now we are being asked to say auxiliary workers). Some people fear this group and are afraid they will get out of hand and prove a menace. I see their point of view, but I do not share it. However, I do feel these workers should be chosen carefully; have their duties clearly assigned; work under the supervision of the head nurse to whose floor they are assigned for duty, and be kept in their proper place. They should be trained for specific duties—not educated. They should be well treated and made to feel they have a place in the organization, but definitely not as nurses. The better ones may wish later to enter the nursing school, when they have earned the money, and they should be encouraged to do so, and chosen with that in mind. Up to now, their duties have been non-nursing, but there is no reason why they cannot be shown how to give, in certain types of cases, as good a bed bath as a student nurse. After all, members of a family often do. And we may have to change our conception of what constitutes non-nursing duties. There is no need ever to make a mistake in choosing for the nursing school one of these workers who has spent six months as a ward aide. Every ward aide taken into school has made good, in my experience.

"Essentials of a Good Hospital Nursing Service" and "Essentials of a Good Nursing School," have been recently revised, by a committee working under Dr. Faxon and composed of representatives of the American Medical Association, American College of Surgeons, American Hospital Association, American Nurses Association, National League of Nursing Education and Public Health Association. These are invaluable to those responsible for the good care of patients and good teaching of students, and it speaks well that all the above groups united in the re-

vision of them, as they did in the original preparation.

In conclusion, though our problems seem difficult, they are part of the cycle or situation in

which we live at present. I am confident we will find our way out by all working together. We need your coöperation. We wish to give you ours.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

Frank C. Andrus, Pathologist

Presentation of a Case

DR. S. BLACKMORE: The case is that of a fourteen-year-old negro male who was first seen at the hospital at the age of four years. He was admitted at that time with the history of pain and swelling in the right thigh and lower legs for four days before admission. He had also been dyspneic for four days. Physical examination revealed a child with a distended abdomen. There was a systolic murmur at the apex of the heart. There was definite swelling in the right thigh with pain on motion. There was pain on motion of the extremities or contact. A diagnosis of peri-osteitis, either tuberculous or syphilitic in nature, or osteomyelitis was made. He was studied in the hospital for thirty days, during which time spinal tap, x-rays and Mantoux were done. These were essentially negative. The diagnosis on discharge was undetermined.

His present admission was on July 14, 1942, when he came in with complaints of back pain and abdominal pains. The pains had started on July 10 and had come on suddenly, accompanied by malaise and fever. He also had two or three bouts of vomiting. On the following morning, he went to a private physician, who gave him an enema and sent him home. On July 12, the patient was perfectly well, felt fine, and went fishing. On the next day, however, he again had an attack of abdominal pain and a generalized feeling of illness. He was brought to the hospital approximately four days after the onset of his illness. He had previously had several attacks of this nature. The mother stated that prior to each attack she had noticed a slight icteric tinge in the scleræ.

Physical examination revealed a poorly nourished negro youth of fourteen years, who was in no acute distress. He complained of vague joint pains and generalized abdominal tenderness, apparently more severe in the lower quadrant. There were palpable submaxillary lymph nodes on both sides which felt shotty, but were not tender. Examination of the eyes revealed an icteric tinge to the scleræ. The chest was negative except for enlargement of the heart to the left. A harsh systolic murmur was heard over the entire precordium and transmitted to the axilla. The temperature was 101 degrees and pulse 120 per minute. The patient weighed

but 58 pounds. He evidently had not been eating very well, and was dehydrated. Examination of the abdomen revealed bulging, but no evidence of ascites. There was tenderness to deep palpation. The extremities were normal.

Laboratory data: The Wassermann test for syphilis was negative. The hemoglobin was 42 per cent, erythrocyte count 2,000,000, leukocyte count 11,400, with 73 per cent neutrophils, 7 per cent lymphocytes and 10 per cent monocytes. The urine was negative. There was no urobilin or urobilinogen in the urine. The hemacrit was 25 per cent. A quantitative urobilinogen was 7.7 mg. on a twenty-four-hour specimen. A blood culture was negative. The icterus index was 14, and the van den Bergh showed a slight trace to the direct reaction. A fragility test was run with the control beginning at .40 per cent sodium chloride and completed at .30. The patient's red cells began to show hemolysis at .38 and completed at .13. Blood morphology studies from a sternal biopsy revealed marked anisocytosis, poikilocytosis and polychromasia. There were occasional normoblasts showing sickle shaped red cells.

DR. GRATZKE: Here is a radiograph of the chest. He has an enlarged heart of the left ventricular type. There is nothing definitely characteristic in the radiographs of the skull. We took plates of the bones of his hands and we see here that there is loss of cortical bone. The cortex is a good deal thinner. The phalanges, as well as the ends of the long bones of the forearm, show the picture of chronic hemolytic anemia.

DR. FRANK ANDRUS: This is due to the expanding of the bone marrow. Are pathological fractures common in cases like this?

DR. GRATZKE: No. Primarily because these individuals are very inactive because of their anemia.

DR. PAUL HEISE: Sickle cell anemia is a rare blood dyscrasia almost exclusively found in negroes, and characterized by varying degrees of anemia associated with specific alterations of the morphology and behavior of erythrocytes. It was first described in 1910 by Herrick. His original description was such that today, with our present knowledge of the condition, we can add little to his original dissertation. In 1911, Cook and Meyers, working with Emmel, studied a case

of sickle cell anemia, and in their thorough investigation discovered that the father of their patient also had sickle cells in his blood. This was the first indication that there was a hereditary factor. Mason, in 1922, summarized the previous cases and decided that a separate disease entity had been discovered, and gave it the name of "sickle cell anemia." The terminology was rather loose until in 1920, Cooley and Lee discovered there were many individuals of the negro race who showed sickling in their blood, but who had no clinical manifestations of the disease. They called this condition sickle anemia to be differentiated from those with sickle cells plus clinical manifestations of anemia. The disease is almost entirely limited to the negro race. There have been reports of Greeks and Italians with sickle cells in their blood, but Laurence (1931) stated that there have been no unquestioned cases of sickle cell anemia in the white race. Cooley, in a series of 400 cases, found 7.5 per cent of the negroes with sickle cells in their blood; Randeau, with 150 cases, showed 6.6 per cent Graham, with 1,500 cases, showed 8.1 per cent, and Tomlinson with 275 cases, 6.5 per cent. Sydenstricker stated that 1.5 per cent of American negroes showing sickle anemia had sickle cell anemia.

The age of persons showing sickle anemia varied from birth to seventy-eight years. According to Mason, only three cases of sickle cell anemia have been reported past the age of thirty years, and no cases have been reported past the age of thirty-five years. The symptoms of the disease usually appear between the ages of one to ten and the patient is usually first seen at about the age of thirteen years. That heredity is the largest etiological factor that has been conclusively proven. The hereditary factor is a single, dominant, nonsex-linked Mendelian characteristic, according to Huck. In sickle anemia there are no symptoms or physical signs aside from the presence of sickle cells which may be demonstrated in the blood.

Sickle cell anemia shows the following symptoms: The patient has usually been ill and weak since infancy, with remissions and exacerbations, joint and muscle pain and fever. One of the most characteristic signs is severe abdominal pain which is believed to be caused by areas of infarction occurring in the spleen. The patients are usually weak and breathless after exertion. The sclerae have a yellowish tinge and there is moderate lymphadenopathy. The heart is enlarged and of the left ventricular type. A systolic murmur is often present. Ulcers may or may not be found on the lower legs about the ankles. The ulcers are usually large, punched out areas with granulating surfaces. There is usually hepatomegaly, and early in the disease, splenomegaly. The frequency of abdominal seizures determines the size of the spleen, which becomes smaller with each exacerbation.

The hematological picture reveals the red blood count to be often between one and three million, a low hemoglobin, with a color index below one, extreme characteristic poikilocytosis with as many as 50 per cent of the red cells being deformed, the majority of them being elongated, sharply pointed at one or both ends, with a tendency to be crescentic. The reticulocytes are increased from 20 to 40 per cent. There is leukocytosis from 15,000 to 30,000 with normal distribution. The platelets are normal, and there is usually a shift to the right of the Arnetz count. Phagocytosis of red blood cells may be seen, both *in vivo* and *in vitro*. The cells stain more deeply and may have longitudinal striping. There is polychromatophilia, anisocytosis, and the normoblasts may be present in large numbers. There is often a diffuse punctuate basophilia.

There is increased resistance to hypotonic solutions of saline. Normal red cells begin hemolysis at .4 per cent and are completed at .36 per cent. In Cooley and Lee's cases average hemolysis began at .39 per cent and was completed at .25 per cent. Sickle cells are found to have more resistance to hypotonic solutions than the round forms. The sedimentation rate is increased and the

icterus index rises. There is usually a positive indirect van den Bergh. The bleeding and clotting times are normal. Gastric analysis reveals either a hypo or achlorhydria according to Dreyfus. The sickling phenomena may be demonstrated by allowing a hanging drop preparation or a paraffin ring preparation to stand. You then see deformity of the red cells ranging from triangular or quadrangular cells; filiform or crescentic cells. The cells seem to be influenced by the clotting and pressure of the cover slips. Huck states that if these cells are allowed to continue to stand, the sickle cells return to the normal shape of red blood cells. Sydenstricker believed serum to be essential to this sickling. Bell found no sickling to occur if the washed red blood cells were replaced in their own homologous serum. Red blood cells from sickleemics sickled in normal homologous serum, according to Sydenstricker. Hahn and Gillespie showed that sickling readily occurred in decreased oxygen tension or where red cells were suspended in carbon dioxide, hydrogen or nitrous oxide. When these gases were replaced by oxygen, the sickle cells returned to normal shape. Cooley and Lee found that a preparation at incubator temperature the sickle cells disappear and leave only the round cells. They concluded that the cells of sickle cell anemia hemolyzed at incubation temperature in their own serum and normal serum, and that the serum of sickle cell anemia was not hemolytic for normal cells.

In cases of sickle anemia, sickle cells are found usually in all organs of the body in fixed tissues at postmortem. There are hemosiderin deposits in the liver, spleen and kidneys. The spleen is said to show malformation of the sinuses, especially about the Malpighian bodies, with pools of blood partly or completely surrounding the Malpighian bodies. There is abnormal development of the capillaries. The reticulum is not primarily abnormal. In sickle cell anemia, the leg ulcers which are found are not characteristic. The left ventricle of the heart is enlarged, and there is fatty metamorphosis of the myocardium. The spleen varies in size from 600 to 2 grams. The age of the patient does not determine the size of the spleen, but rather the spleen is shown to become smaller after many remissions and exacerbations. If atrophy takes place there is progressive capsular thickening with fibrosis. The liver is slightly enlarged and the sinusoids are engorged with blood, often there may be periportal fibrosis. The Kupffer cells can be seen to contain phagocytosed red blood cells and hemosiderin. There are islands of hyperplastic red marrow and areas of necrosis. There often is some intramembranous bone formation and evidence of increased hematopoiesis. On x-ray, porous and lace-like reticulation can be seen.

An attempt to explain the pathology and symptomatology of the disease was made by Bauer, who believes that all hemolysis was caused by mechanical impaction of masses of deformed red blood cells in the smaller blood vessels of various organs. This impaction with subsequent hemolysis and the resulting conglutinated masses, was responsible for the further pathologic changes and the clinical symptoms of sickle cell anemia. The liver, spleen, and kidneys showed this red blood cell engorgement and stasis. This stasis develops because the misshaped cells are unable to pass through the small vessels. This change is especially noted in organs with a slow blood flow as in the spleen, liver, or lymph nodes. This stagnation produces thrombosis, ischemia, infarction, fibrosis and resolution of red cells with subsequent anemia. The anemia is not constant and once the bone marrow can not compensate for the destruction, circulatory stagnation in the bone marrow, there results an impairment of the regenerative powers and further anemia. This is seen at postmortem in the large areas of infarction in the spleen caused by thrombosis. The liver is seen to be distended by red blood cells with necrosis of liver cells, but these are often microscopically seen to have areas of necrosis and corresponding thrombosis of the sinusoids. Many of the neurological signs

(Continued on Page 748)

HISTORY OF MEDICINE IN MINNESOTA

A PSYCHIATRIC BULLETIN IN MINNESOTA OF HALF A CENTURY AGO*

A Chapter of Psychiatric Journalistics

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In November, 1891, the Hospital Medical Staff of the "Second Minnesota Hospital for the Insane" (in 1893, its name was changed to "Rochester State Hospital"), started the publication of a quarterly bulletin "to try to crystalize some of the results of our work in writing." During a two-year period, from November, 1891, to November, 1893, nine issues were published. The "Bulletin" was then discontinued because, "the majority of the profession have not, as yet, attained any great interest in mental diseases." It was indeed a brave undertaking for a small hospital staff; therefore, its fiftieth anniversary seems worthy of note.

In 1891 the "Second Minnesota Hospital for the Insane" had been in existence for about fourteen years. Originally, it was intended as a State Inebriate Asylum when the building was started in 1877. A year later, however, in 1878, by an act of the State Legislature, it was changed to the "Second Minnesota Hospital for the Insane." It was actually opened for reception of patients on January 1, 1879.

In 1891 the superintendent of this Hospital was Dr. A. F. Kilbourne (1858-1934), who was appointed in 1889 and continued to hold this position for forty-five years, until he died in 1934. The First Assistant Physician was Robert M. Phelps (1858-1928), who was mainly responsible for *The Bulletin*, and was its main contributor. He served on the staff of the Rochester State Hospital from 1885 to 1912; since 1892 as Assistant Superintendent. In June, 1892, he married a member of the Medical Staff, Dr. Sarah V. Linton. Both continued in the service. In 1912, Dr. R. M. Phelps was appointed Superintendent of the State Hospital at St. Peter, Minnesota, succeeding Dr. H. A. Tomlinson. He held the superintendency until 1925, when, because of failing health, he resigned and retired from active work, following which, he made his home with his daughters at St. Peter and Faribault, Minnesota. His wife, Dr. Sarah Linton Phelps (1859-1903), served on the Staff of Rochester State Hospital until 1898. She died of tuberculosis in 1903.

Besides these two physicians, in 1891, there were two more assistant physicians: Drs. N. M. Baker (1859-1928) and F. E. Franchere (1866-1934). In 1892 Dr. Franchere resigned and Dr. Eric O. Giere replaced him. He served a short time only, and was replaced by Dr. G. W. Moore, who a year later, in 1893, was replaced by Dr. Cyrus B. Eby (1872-1934). All these physicians participated in *The Bulletin*. Only one of them is alive today: Dr. Moore, who was born in 1870, and is retired at present. Dr. Eric Alonzo Giere, who was born in 1868, practiced in Saint Paul until 1921 when he moved to Minneapolis. His special

*Dedicated to the Fiftieth Anniversary of a psychiatric bulletin of the Rochester, Minnesota, State Hospital.

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work for many years was general surgery. He had three sons, all of them physicians. The older two were associated with him in the so-called "Giere Clinic." Dr. Giere died February 12, 1942, at the age of seventy-three.

In the Introduction, Volume 1, Number 1a, (November, 1891), the editors of *The Bulletin* had stated:

We, as assistant physicians, organized ourselves into a society to meet once a week for the purpose of discussing types of mental disease, and other matters of interest connected with our work. This (Bulletin) is entirely a private enterprise, maintained at our own expense, we, publishing the results and observations of our work in this way, that they may be useful. Another reason for this work may be found in the knowledge that the multiform misconceptions of our work, and our situation here, are founded directly in a lack of knowledge of the methods and means, as well as the difficulties in our labor. These misconceptions we see to exist everywhere. A physician called here only some days ago, and after going about the "house" asked where the "cells," or the places to keep the "bad ones" were?

As already mentioned, Dr. R. M. Phelps was the "soul" of *The Bulletin* during the two years of its existence. His papers, articles and notes dealt with subjects such as Paranoia, General Paralysis, Strychnine in Inebriety, The Hospital Idea, Influenza (in relation to mental patients), spells or periodicity in Insanity, Renal Diseases Among the Insane, Administrative Topics (such as: The Extent of Administrative Power, Style of Buildings, Types of Dining Rooms, Open Wards, The Proportion of Attendants, Wages of Attendants, Amusements, Occupations, et cetera), Graduation of Responsibility in Insanity, Clinical Studies in Insanity, and so on. Dr. Phelps was a very progressive psychiatrist, conscientious, devoted to his work, and kept abreast with everything going on in psychiatry here and abroad. He was respected and liked by all who knew him. He was active in the county and state medical societies, contributed many papers and articles in the current periodicals, and published textbooks on nursing (one of them in collaboration with his wife).

The other members of the Staff did their share, too. Dr. S. Linton (as already mentioned, since 1892 S. Linton Phelps) discussed in her papers and notes topics such as The Training School for Attendants in Asylums for the Insane, Gynecological Work Among the Insane, Autopsies, Phthisis Among the Insane. It is of interest, that there has existed in the Rochester State Hospital since 1889 a training school for attendants; and since 1890, a training school for nurses. Dr. W. J. Mayo was one of the lecturers on Surgical Procedures. The number of autopsies was comparatively large: about sixteen yearly.

Dr. N. M. Baker wrote on Acute Delirious Mania; reviewed current periodicals, et cetera.

Several outside physicians contributed to *The Bulletin*. Thus, Dr. H. A. Tomlinson, of the St. Peter (Minnesota) State Hospital, discussed Selection, Preparation and Serving of Food to the Insane; Dr. C. Eugene Riggs, Professor of Nervous and Mental Diseases at the University of Minnesota: Some Notes on Scotch Asylums, Some British Alienists, et cetera.

Dr. Elizabeth C. Mallison, Assistant Physician at the St. Peter State Hospital, contributed a paper with a curious title: Report of a Case Exhibiting the Symptoms of General Paralysis, but in which the Postmortem Disclosed Syphilitic Brain Disease (*Sic!*). It is also of interest that Dr. R. M. Phelps discussing general paralysis in one of his papers mentioned: "The operation of trephining for the relief of some cases of this trouble (general paralysis), especially those in which localizing brain symptoms can be found, seems to be a ray of light shining through the general therapeutic darkness which envelopes the subject."

Many interesting items are scattered through the pages of *The Bulletin*; for instance, here are samples of questions offered during examinations to candidates for interns in State Hospitals of Minnesota:

1. Name the various forms of defective mentality, giving a definition of each.
2. Define and illustrate the insane beliefs.
3. Define dementia, naming its different types. Explain what you understand by "acute mania," "primary dementia," and "secondary dementia."
4. Define the different varieties of stupor, naming its classical divisions. Also, describe a typical case of stuporous insanity, giving its prognosis and treatment.
5. Describe a case each of puerperal, lactational and climacteric insanity, giving their prognoses and treatment.
6. Is impulsive insanity invariably attended by the insane beliefs? State at what period of life this predisposition tends to assert itself. Also, state under what conditions the homicidal impulse is most likely to manifest itself in epilepsies.
7. Describe the different types of melancholia. Explain what you understand by "Raptus Melancholicus" and "Precordial Fright." Give the treatment of this disease.
8. Name the varieties of mania. Under what divisions does the moral insanity of Pritchard fall? Explain the meaning of "Folie Raisonante," and give a brief description of "Délire Aigue," with its prognosis and treatment.
9. Explain what you understand by "Folie Circulaire," "Folie á Double Forme," and "Katonía."
10. Describe the best manner of artificial feeding. Also give the dosage and the best manner of administration of such hypnotics as sulphonal, paraldehyde and chloralamid. Also describe minutely the hypodermic use of hydrobromate and hyoscine.

The number of patients of the Rochester State Hospital, about the time *The Bulletin* was started was around 1,050. The following table shows the movement of population for the biennial period July 31, 1890-July 31, 1892:

Total number on July 31, 1890.....	1,034
Out on trial visit, July 31, 1890.....	67
Remaining on July 31, 1890.....	967
Admitted during period.....	625
Returned from trial visit.....	3
Sent away on trial visit.....	327
Eloped	23
Transferred to St. Peter State Hospital.....	50
Died during period.....	135
Discharged as recovered.....	176
Discharge improved	135
Discharged unimproved	24
Remaining in Hospital, July 31, 1892.....	1,058
On trial visit, July 31, 1892.....	78
Connected with Hospital, July 31, 1892.....	1,136

Some amusing points may be selected from the pages of *The Bulletin*. For instance, the following note: "The men are to an extreme degree more capable of organized and good work. I do not hesitate to say that the male side is ahead by at least three times. This is true, too, right through work appropriate for women—bedmaking, dishwashing, et cetera." Of course, this note is unsigned, but the sex of the author is not difficult to guess.

The abstracts of the current medical periodicals were numerous, and included journals, such as *American Journal of Insanity*, *Review of Insanity and Nervous Disease*, *Journal of Mental Science* (London), *Brain* (London), *Alienist and Neurologist*, *Philadelphia Medical News*, et cetera.

Some of the advertisements are of no less interest than the context itself. For instance, an advertisement of an "Instantaneous Electric Lighter," that "a child can operate" (Price \$5.00; with Medical Coil and Hand Electrode, \$5.50). Of

still greater interest, is an advertisement by Smith & Davis Mfg. Co., St. Louis, Missouri, about "Protection Bed for the Insane" (No. 46, Size 6 ft. 3 in. by 2 ft. inside; weight 350 lbs.) It looks like a cage for animals.

It is remarkable that the current medical press practically ignored *The Bulletin*. A few journals had brief notes about its appearance. Only the *Review of Insanity and Nervous Disease* stated, after commenting favorably on its papers: "We are able to commend this new departure in hospital work, and hope that it will be continued by the officers of this institution, and that others may emulate this example. If every institution in America had such a publication, an immense amount of material that is now going to waste, would be saved to the profession."

There is fascination in watching the movement of that lightless multitude, whose names have paled in the twilight, and there is a real and abiding thrill in the perusal of the defunct journals, with their generous and dated rhetoric; their yellowed pages bring back the remote strangeness of other days, and give one the opportunity of seeing one's period in proper perspective. This is perhaps the main value of historical investigations.

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EXTRA B VITAMINS WOULD HELP BRAIN WORKERS

Brain workers apparently would be able to do more and perhaps better work, or at least could do their regular work with less fatigue, if they increased their daily ration of B vitamins above the amount required by the average healthy person. Those who perform physical work, however, need not expect any increase in muscular strength or endurance or any lessening of muscular fatigue through taking extra amounts of B vitamins.

These are the conclusions of studies reported by Dr. Ernst Simonson, Dr. Albert Baer and Dr. Norbert Enzer, of Milwaukee.

The Milwaukee scientists gave a large surplus of the vitamin B complex to 12 healthy persons and compared them with 11 people on an ordinary diet. The extra vitamin ration had no detectable effect on any type of muscular activity, neither endurance, recovery, speed, force nor fatigue, but it did prevent fatigue of the central nervous system, which includes the brain.—*Science News Letter*, April 11, 1942.

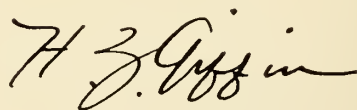
President's Letter

MEDICAL CARE FOR CIVILIANS

THE immediate duty of the medical profession is to obtain physicians for the various services. Minnesota will have to supply about 200 more physicians before January 1. The required number of doctors will have to be obtained in some way. Everyone recognizes that the individual decision is difficult. Physicians are needed at home and they are making a real contribution, both on the home front and in military service, and all are working harder than ever before. It is a problem for each man to solve in communion with his own conscience and according to his own peculiar situation in the community. This subject is covered in an editorial in this issue, which everyone should read.

Hand in hand with supplying physicians for the services goes the task of satisfactory medical care of the civilian population, and it is this that I wish to discuss especially. Articles and editorials are appearing in the lay press calling attention to communities without medical care and jumping quite unjustifiably to the conclusion that group practice, prepayment plans, or some type of state medicine will solve the difficulty, whereas experimental schemes at this time would only throw sand in the gears. In general, through this period the physician should continue to practice as he has been accustomed to practice; more good will be accomplished in this way. However, the physicians of each community and district should meet and devise methods by which each particular district can be properly protected. First, office hours can be arranged for affected towns by doctors in surrounding communities. This has been successfully applied in some places. Second, in some small cities, group effort in dividing the work may be feasible, whereby a doctor who is too busy at a given time may be assisted by others who are not occupied at that time. Third, where the situation cannot be satisfactorily covered, it may be possible through the offices of the State Medical Association to find a locum tenens physician. Some male physicians are physically disqualified for service on completing their internship and no women physicians are taken into military service. These two groups form a pool which will make available for service in various communities about 10 per cent of the physicians who complete their internship each year. Members of these two groups should be asked by the Procurement and Assignment Service to volunteer for civilian service wherever they are needed. The experience in private practice would be valuable to them. Retired physicians are also available for locum tenens service. Fourth, there should be a center of medical information in each county. The office of the chairman of the county Advisory Committee or the local health office might be designated and advertised as such an information bureau. In this way, a record also can be obtained of the actual needs in each district. If people cannot obtain information locally, they should be instructed to write to the offices of the State Medical Association in St. Paul. It is our responsibility to see that medical care is obtained where a bona fide need is demonstrated. In general, it is essential that each small town or community be covered in some way, and second, that doctors in each community meet and consult to see that medical care is being administered satisfactorily.

Medical care for expanding industry and the resulting boom towns is a matter for consultation between the officers of the industry involved, the State Department of Health, local health officers, and officers or committees of the local and state medical societies. Many special problems are involved in each industrial locality, and the situations differ. A special Allocations Committee, working in close association with the Procurement and Assignment Service, is under consideration to provide physicians and surgeons for industrial practice and for civilian needs.



President, Minnesota State Medical Association

EDITORIAL

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL
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justment of water and electrolytic balance is more prevalent in hospitals with the lesser technical equipment, for the simple reason the hospital population is larger. But even in the highly equipped and specialized hospitals the accurate adjustments of such balances are not always accomplished successfully. The reasons for this are as follows: there is no absolute measure of cardiac efficiency; renal tests may be misleading; the riddle of water flow in the body is still unsolved.

Two years ago at the University of Minnesota there was a round-table discussion on this very subject.¹ Dr. Peters, of Yale, was asked what criteria to use for determining the amount of salt to give. Was it the measure of the vascular bed, was it the measure of the excretion of the kidneys, was it the measure of the amount of gastric fluid which was removed, or was it the clinical picture as a whole? Dr. Peters replied: "It has been asked how we found out that people were hydrated or dehydrated? Well, we can't at the present time. We are peculiarly unable to do so. At present, we must rely on the elasticity of the skin, the general state of the circulation, whether the blood pressure has fallen too far, the serum proteins, etc., but most of all you must look at the patient. No amount of chemistry will eliminate accurate clinical observation."

And again,² "Despite the specific directions which many have offered for determining the amount and character of the fluid requirements of the surgical patient from the hematocrit, blood count, blood or plasma specific gravity, blood or plasma chlorides and plasma or serum proteins, the writer inclines to the opinion of those who hold that the desired information cannot be obtained by any conceivable combination of tests of the state of the blood. However eager one may be to employ "a rational method" in the administration of fluids, the available laboratory aids by no means preclude a consideration of the pertinent clinical factors."

It is for this reason that some of us look askance at the facility and frequency with which the equivocal intravenous route is used. It is for

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BUSINESS MANAGER

J. R. BRUCE

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WATER BALANCE*

THE commonest use of intravenous therapy is to correct water, salt, sugar, plasma and red blood cell deficiencies. All of these deficiencies involve variations of osmotic pressure. The surgeons have contributed largely to the technique of giving fluid intravenously and also to the method of computing how much fluid to give. However, the most common abuse is found in surgical routine by using fluids intravenously without regard to cardiac, renal or osmotic imbalances. To evaluate these factors, a highly developed technical staff is essential. This is not prevalent in all hospitals. It is a safe guess that the need for ad-

*The substance of a discussion entitled "The Use and Abuse of Intravenous Therapy" given in Duluth at the State Medical Meeting, July 2, 1942.

this reason that some of us, who see the spectacle of pulmonary edema following the injudicious use of parenteral fluid, have nothing but the greatest sympathy for the clinician in charge. How can he know how much salt and water to give when such men as Dr. Peters, the eminent student of this problem, do not know.

The ease by which the various drug houses have made available the different apparatus and solutions for intravenous therapy has contributed to the momentum of its widespread use. The tendency to routinize surgical patients in regard to fluids, in which the trend toward standardization has led us, also adds to its promiscuous use.

Then, too, the use of gastric and duodenal siphonage by the nasal tube has also confused the problem. This extremely useful bit of machinery can suck more chlorides out of the intestinal tract in twenty-four hours than can be put back into the body (by veins) in the same time. Its proper use is highly commendable. Its promiscuous use is extremely questionable. To make sieves of postoperatives is a clinical incongruity. I have yet to be convinced that any correctly made intestinal or gastric anastomosis will limit the function of the viscus to the point at least where it will cease to propel fluids down the tract. I am positive that giving fluids by mouth has not been tried sufficiently. The fear of vomiting and distention has kept the clinician from experimenting with this method.

The body fluids are supposed to be in a state of osmotic balance. They are never really so. There is a large margin of recovery if this balance is disturbed. Undue interference on the clinician's part merely adds to the osmotic confusion. To attempt to correct marked variations in a limited time may be dangerous. I am not thinking so much of the strain on the circulating apparatus; I am thinking of the strain on the cellular metabolism of permeable membranes. We seem to forget that these cells are not just porous membranes. They are subject to fatigue just like other cell systems of the body. It is in the older group of patients that the most critical surgical procedures occur. It is in this group that permeable membranes are reduced in area. The sclerosing process is not limited to the blood vessels but involves the capillary beds. It is in this group that intravenous therapy needs more care than in the young. I wish to advance the premise

that fatigue and not cardiac insufficiency alone is a factor in some of the pulmonary edemas we see after use of parenteral fluids. The irreversibility of this condition is very suggestive that injury to membranes may be a factor.

Since we have no absolute measure of cardiac integrity, since the renal tests may be confusing, and since the water activities are still an unpredictable factor, it behooves us to give fluids by vein cautiously and slowly. There is not a single formula for computing the amount of fluid that applies to any single case. Formulas are necessary, but accurate clinical examination of the patient, and judgment, must be the ultimate guide we must use in giving parenteral fluids.

The weighing of the patient daily, as advocated and practiced by Dr. Wangenstein, is probably the best physical means we have today for guidance in giving fluids. But that method too must be supplemented by frequent and accurate clinical observation, with the addition of good clinical judgment. Water taken by mouth differs in its activities in the body from water given by vein. Whenever possible, let us give fluids by mouth.

—H. L. ULRICH.

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MALNUTRITION IN INDUSTRIAL WORKERS

WHILE the incidence of malnutrition in our country has been grossly exaggerated in certain quarters, there is undisputable evidence that it does exist to considerable extent in the population at large. This is more evident in the South, particularly among the negro population, as proven by the prevalence of pellagra. However, there is evidence of more malnutrition in the north Atlantic states than in the rest of the country, especially the far West. In addition to those individuals who have clinical evidence of malnutrition there is a considerable percentage of the population who are not properly fed and who would be more efficient if corrections as to kind and amount of food were made in their diets. Important as the subject is in time of peace, it is doubly so in time of war.

The first report of the Committee on Nutrition in Industry of the National Research Coun-

cil has recently appeared and contains much valuable information.

The report calls attention to the experience in England where undernutrition was frequently encountered among industrial workers and where additional feeding resulted in increased output and fewer accidents. While there is little information available at present as to the diet of industrial workers in this country, the Committee on Nutrition in Industry has compiled certain facts and makes definite recommendations.

Industrial health practices in this country have been largely restricted to the prevention and cure of occupational diseases and accidents. Astounding progress has been made along this line. The question of proper nutrition has been given almost no consideration.

That employers are becoming more interested in the subject of better nutrition of their employees is evidenced by the fact that some of them are distributing synthetic vitamins to their employees. This is being done without preliminary study of the nutrition problem of their employees. The Committee does not recommend the procedure. If diets are deficient they should be brought up by natural foods, for "supplementing the diet with synthetic vitamins fails to make provision for deficiencies in proteins, fats, carbohydrates, minerals and the numerous accessory factors which have not been made available in crystalline form, but are nevertheless essential for the maintenance of health." "Diets which are poor enough in one factor to lead to a nutritional deficiency are most likely to be poor in several other factors as well." "In their pure form, vitamins are tools of great precision, invaluable when used by skilled technicians. It would be a tragedy, should their indiscriminate use in unskillful hands throw discredit on their tremendous potentialities for human benefit."

Under the subject of nutrition in general the report calls attention to our poor food habits. Jolliffe has called attention to the fact that the adolescent boy is too likely to stop drinking milk as soon as he dons long trousers. "The amount of candy sold in this country in 1939 was sufficient to furnish 90 calories per capita per day. The amount of alcohol consumed in the United States in 1938 was sufficient to furnish 86 calories per capita per day, and probably exceeded 200 calories per person of alcohol-consuming age." In addition there are the sweetened carbonated beverages which are so popular. All of

these contain no vitamins and are commonly substituted for the calories of essential foods.

Attention is called to our commissary, defective in many respects. Highly milled grain, refined sugar and loss of nutritive value through improper cooking are mentioned.

The Food and Nutrition Board makes specific recommendations. It recommends the enrichment of white flour with vitamin B and iron, the use of whole grain, iodized table salt, oleomargarine fortified with vitamin A, to furnish a cheaper substitute for butter.

Progress in improving the nutrition of the industrial worker will depend on several factors. The ability of the worker to buy the proper food depends on his wages and the cost of proper food. Education in dietary matters is fully as important. The worker must know that he cannot work well on a breakfast of doughnuts and coffee. Industry can do much to educate employees by means of pamphlets, serving substantial meals and the employment of a dietitian in large industrial plants.

As a concrete example of the proper daily consumption of a worker, the Food and Nutrition Board of the National Research Council, gives the following: at least one pint of milk; two servings of potato; two servings of fruit, one of which should be a citrus variety or tomato; two vegetables; one egg; one serving of meat, fish or poultry; a cereal dish (whole grain); whole grain or enriched white bread at every meal; butter or fortified oleomargarine, the remaining calories to be supplied by a choice of vitamin-rich foods.

The study of nutrition of the industrial worker and the population in general is receiving great impetus as a result of the war. Its permanent effect on the health of our people should prove one of the few good results of World War II.

TEST FOR VITAMIN NEED

A simple test for determining who needs vitamins and who is already getting enough of them was announced by Dr. V. A. Najjar and Dr. L. Emmett Holt, Jr., of Johns Hopkins University, at the meeting of the Federation of American Societies for Experimental Biology. The test is made after a twelve-hour overnight fast.

If, during the thirteenth hour, the person tested is still excreting vitamins via the kidneys, he probably has a good surplus and does not need any more than his diet has been furnishing. If he is not excreting them thirteen hours after dinner, he probably needs to take more vitamins. The test so far has been limited to three of the B vitamins—thiamin, riboflavin and nicotinic acid.—*Science News Letter*, April 11, 1942.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

Minnesota State Medical Association
George Earl, M.D., Chairman

APPEAL TO YOUNG PHYSICIANS

When the House of Delegates met in Duluth the coöperation of the entire medical profession of the state in providing Minnesota's quota of medical officers for the Army and Navy was promised by official action of the delegates.

But applications for commissions subsequent to the meeting have not fulfilled that promise. For that reason, a new appeal directed to available physicians under the age of thirty-seven and to unmarried older men up to age forty-five is now being issued by the Committee on Procurement and Assignment.

No one doubts the essential patriotism and serious purpose of most of the men who have failed, so far, to volunteer their services. There are many compelling individual reasons for delay. Many men in this group are known to be arranging their affairs with the intention of entering the service of the Armed Forces at an early date and the committee is well aware that extraordinary difficulties are involved in dropping an active practice and in adjusting family requirements and responsibilities.

Need Is Urgent

But the problem is not now one of ultimate intentions but of immediate needs. Large scale troop movements and the opening of offensive action in the Pacific and the Atlantic make the immediate need for physicians more urgent than any personal or private problem that may be keeping eligible physicians at home. Minnesota must have its full quota of 900 in the service by December 31 of this year, and we are still more than 200 short of that goal.

The fact that all Army physicians are not constantly employed in care of the sick and wounded does not mean that the full quota is not urgently needed on the line of duty now. Neither firemen nor police officers are constantly employed in fighting fires and pursuing law breakers; but a

full staff must be present and ready for instant action if civilian life is to be safe.

Man Power to Be Conscripted

Selective Service is now exhausting its reservoir of young men and of older men without children. The time for drawing upon all men under forty-five is drawing closer and no exception can be made for physicians, especially in view of the fact that commissions are available to all of them.

There is another aspect of the situation which should serve as a potent stimulus to early action. In the event that the necessary number of physicians and other professional personnel does not apply in time, there is no doubt that Congress will pass special legislation conscripting all man power. It is possible, also, that the President may take the matter of procurement and assignment of physicians entirely out of the hands of the medical profession and restore it to the War Department and the Selective Service system. Either action would place medicine in a sorry light and greatly hasten the day of federal control of medicine.

Do It Now

Letters have been sent by the Committee on Procurement and Assignment to all available physicians under the age of thirty-seven, plus a few others in special categories, who have been classified by their own local committees as available from the point of view of community need.

It is clearly the duty of these young men to enter the service of their country now.

NEW TASK FOR N.P.C.

An editorial appeared in the August issue of MINNESOTA MEDICINE which briefly described recent and proposed activities of the National Physicians Committee. Members of our state association who contributed to the support of this

organization undoubtedly were pleased to know of the progress accomplished. At their recent meeting, the A.M.A. House of Delegates passed a resolution approving the policies and the activities of the N.P.C. The question is often asked why does not the A.M.A. carry on those activities. It is quite obvious to all who are familiar with the organizations of the A.M.A. that it cannot employ methods used by N.P.C. to influence public opinion in regard to the merits of the present form of medical practice nor in the participation of political activities.

Organization Essential

An organization such as the N.P.C. is essential to the protection and continuance of the principles of the present form of medical practice. Although every physician who has been engaged in the actual practice of medicine knows that federal control would lower the quality of medical care, it is difficult as well as costly to give this information to the public. It is almost impossible to compete with the wide facilities available for propaganda by social theorists in the present administration.

N.P.C. is dependent on voluntary contributions by physicians and their friends for funds to carry on its activities. Unfortunately, these have been limited in amount and insufficient to employ the usual methods of publicity extensively.

Only Recourse

An opportunity now presents itself to supporters of the N.P.C. which deserves especial consideration. You are all familiar with the results of the trial in Washington which ended in conviction of the A.M.A. for violation of the Sherman Anti-Trust Act. By an unlooked for interpretation of that law the professions were included with the trades. And by a still more unexpected interpretation, the labor unions were exempt from any implications. This interpretation has been sustained by the Court of Appeals and a plea for reconsideration is now before the Supreme Court. It is quite obvious that if the lower courts are sustained the present methods of conducting medical care and the code of medical ethics will be severely handicapped. Medical organizations will find it difficult to carry on with activities which experience has shown to be in the best interest of medical practice as well as of public health. As Judge Mitchell of the Appellate

Court stated in rendering the verdict, the only recourse left to the professions would be an amendment or reinterpretation of the Sherman Act which would exclude the professions.

With this end in view, the N.P.C. is starting out on a campaign to influence Congress to consider such modification of the Sherman Act. Many of you have received circulars urging participation in this campaign. In Minnesota we are fortunate in having a Committee of the State Association which is experienced in matters of this kind and which can be relied on to do everything possible to accomplish these objectives.

Minnesota Well Situated

Unfortunately, however, there are but few states which are so well situated as we are in respect to legislative matters. Plans are being made so that an active legislative committee will be set up in every state which will function along similar lines to that now existing in Minnesota. It would seem that with the coöperation of the other professions a profound influence can be brought to bear upon the members of Congress to correct what was apparently an oversight in drawing up the original bill passed in 1897. It is self-evident that the authors had no intention of including the professions.

It seemed advisable to start this campaign now in order that our efforts would be recognized prior to the November elections. Careful plans are being made for future action with the advice and coöperation of the other professions. However, we will need most of all the personal support of every physician who is interested in preserving our American form of medical practice. You will be kept informed as to methods by which you can be of aid.

INSURANCE STUDY NEEDED

The problem of medical expense and how to meet it is likely to be with us for a long time.

Hospital expense is now satisfactorily handled for a large number of people by the insurance method and Minnesota is especially fortunate in the wide coverage, here, of group hospital insurance, a coverage which is being steadily extended.

Most discussions about the costs of sickness relate, nowadays, to the possibilities of insurance

coverage by some comparable method for medical expense.

In their attempts to meet this problem, a number of states have placed themselves in a difficult, not to say anomalous position. Several medical associations have secured passage of enabling acts granting them special privileges in the organization of medical insurance plans and the physicians appear to have failed to make satisfactory use of those privileges. One of them is now threatened with amendments to the legislative act which gave the physicians exclusive organizing rights for the reason that medical efforts in the field have not been effective.

Clearly, a very careful study of all aspects of the problem, including the probable support of both doctors and public, is needed before any request for special legislation is made.

Success Is Limited

So far, no single instance of a verified and unquestioned success has come to the attention of this committee where doctors have organized their own plans on a state-wide basis. Medical plans appear to have succeeded only where there is a limited group of doctors working as a unit or where there is an unusual situation such as a hospital center which serves a closely knit industrial community and where errors are easily corrected and control is simple. Organization of larger groups involves difficulties and disproportionate expense.

Physicians should therefore proceed with great caution in this matter. They should make exhaustive studies before arriving at any final conclusion as to whether to leave the field to outside organizations, coöperative or commercial, including the established insurance companies, or whether to step in themselves and take the grief.

Medicine Must Be Ready

Obviously war and the shortage of physicians complicates the problem. Most people agree that new social experiments should not be undertaken now. At the same time, most people also feel that the question of medical expense must be met eventually and that post-war problems, including the return of physicians from the fighting forces and a probable post-war depression, will bring renewed clamor for insurance against medical costs. Organized medicine must be ready for that situation.

MEDICAL BILLS IN CONGRESS

Among wartime measures immediately pending in Congress, physicians will be especially interested in a proposal to amend the Social Security Act so as to provide medical care for recipients of Public Assistance. The bill embodying this proposal, H. R. 7411, was introduced by Representative Coffee of Washington and is now pending in the House Committee on Ways and Means.

It provides for federal grants to assist states in providing medical and hospital care, nurses' services, drugs and other medicines and prosthetic appliances for the aged, the blind and dependent children who are recipients of public assistance under the act and also to needy members of their households. It will be administered by the states according to plans approved by the Social Security Board through a single state agency, the actual care to be supplied either directly through the state agency or a local agency or indirectly through payments by the state or local agency to the doctors or hospitals furnishing the care.

For Major Illness

In Minnesota medical care for recipients of public assistance is now supplied by physicians of the recipients' choice with funds especially allotted for such payments to the recipient. But such funds must come within the limit allotted by law to each recipient. The method works well for minor illness and for predictable medical needs. Costs of major, unpredictable, illnesses must often be paid out of relief funds or on a long term basis out of small monthly allowances or they are borne by physicians and hospitals providing the care.

It is the contention of Representative Coffee that this procedure is unsatisfactory and, under the proposed amendment, "the requirements of the individual for medical care would be met instead through a procedure whereby it is possible to pool the risks with respect to medical care and to set up state and local plans which will assure more effective services for recipients of assistance, which will make such services more easily and promptly available to them, which will make possible more effective use of funds by assistance agencies and which will result in greater fairness to physicians, hospitals and others providing care who now encounter frequent and irri-

tating difficulties with respect to payment for their services."

The principle of payment out of pooled federal and state funds for medical service to recipients of public assistance is already established in Minnesota. As a result of the close coöperation between the Division of Social Service and the Minnesota State Medical Association the recipient of public assistance, like the relief client whose privilege is written into the laws of the state, has free choice of physician for such service. Increasing the funds available for that service would not, in all probability, change the plan already in satisfactory operation in the state.

Open to Abuse

Extension of the service to needy members of the household, might add abuses, and extend the basis of care beyond those for whom the state and federal government should assume responsibility.

Such legislation requires the careful study of all who participate in the plan for care of the needy sick, remembering always that Social Security legislation is the avenue through which advocates of government medicine are most likely to promote their plans.

For Chiropractic

The bill introduced by Representative Tolan of California to permit injured or disabled federal employes coming within the United States Employees Compensation Act to be treated by chiropractic and in chiropractic hospitals, within the scope of the laws of the individual states, is now pending on the Union calendar of the House of Representatives. Bills on that calendar may be brought up for consideration under a special rule approved by the House Committee on Rules. Osteopathic services were made available for these employes under the same limitation under the act of May 31, 1938.

Pharmacy Corps

Establishment of a Pharmacy Corps in the Army is proposed in H. R. 7432 by Representative Durham of North Carolina and by Senator Reynolds in S. 2690 both pending the House and Senate Committees on Military Affairs.

The act would replace the Medical Administrative Corps with a Pharmacy Corps and permit trained pharmacists to replace physicians in

many duties having to do with the purchase, storage, transportation, compounding and dispensing of drugs. It would release many physicians, according to its sponsors, who are now performing tasks which could be handled as well or better by pharmacists.

Veterans

Medical and hospital treatment for veterans of World War II on a parity with veterans of World War I, is proposed in a bill introduced by Representative Rankin of Mississippi. This bill is pending with a favorable committee report and will undoubtedly be enacted, thus setting in motion the increase in activities and facilities in the Veterans' Administration which is likely to go to unimaginable lengths as a result of World War II.

More Government Wards

The possibility of civilian casualties from air raids and sabotage adds other probable thousands to the injured soldiers and sailors who will make up the mounting lists of government wards at the end of this war.

The Civilian War Benefits and War Relief Act of 1942, introduced as H. R. 7415 and pending in the House Judiciary Committee, proposes benefits for complete medical and hospital care for personal injuries sustained by injuries if they arise due to a war risk hazard arising after December 6, 1941.

Cost of medical benefits may be paid directly by way of reimbursement or may be paid to the persons furnishing the benefit, the amount to be dictated in regulations of the Administrator of Federal Social Security. It will be in the province of the Administrator also, according to this bill, to determine whether government or private facilities may be used.

COMPENSATION IN RHODE ISLAND

The first state sickness compensation act has just been passed in Rhode Island.

It provides for weekly benefit payments to employes who are ill in exchange for contributions of one per cent of their pay to be taken out of their wages in the same manner and under virtually the same administrative setup as for other contributions made under the Social Security act.

Amounts of weekly benefits range from a low of \$6.75 for the lowest paid workers to a high of \$18.00 for those receiving three thousand dollars a year or over.

Cash benefits for illness have been recommended repeatedly by the President and backers of the present social security legislation and the workings of the Rhode Island plan will undoubtedly be watched with interest.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Julian F. Dubois, M.D., Secretary

St. Paul Woman Sentenced for Unlawful Practice of Healing

Re: State of Minnesota vs. Assunda (Sue) Willner

On August 4, 1942, Assunda (Sue) Willner, thirty-two years of age, 343 West Central Avenue, Saint Paul, Minnesota, entered a plea of guilty to a charge of practicing healing without a basic science certificate. After a searching inquiry into the facts, Judge Hugo O. Hanft of the District Court of Ramsey county sentenced the defendant to one year in the county jail and placed her



on probation for the next year on the following conditions:

1. Refrain from practicing healing in any manner whatsoever;
2. Refrain from having any patients in her home;
3. Refrain from having any old age assistance recipients in her home as boarders, roomers or otherwise.

The defendant was arrested July 20, 1942, by Saint Paul police after it had been reported that the defendant had attempted to perform an abortion on a married woman living at White Bear Lake. It was alleged that the attempt took place in April, was a failure and that the same woman had returned for the same purpose. The "patient" gave a written statement in which she claimed she paid the defendant \$35 and was "examined" by her. When police went to the home of the defendant they found several old age assistance recipients, a waitress from Minneapolis and the "patient." The Minneapolis girl gave a statement in which she claimed that she had gone to the home of the defendant to have an abortion performed and that she had paid down \$15 but had not had any treatment.

The defendant has had no medical training of any kind but had made inquiry in March about obtaining a license for a "rest home." She was advised by the State Department of Health that they would not issue one for her place. Judge Hanft denounced the defendant's activities and told her that one single complaint in the next year would result in her probation being revoked and her going to jail to serve her sentence.

In Memoriam

George Ketcham Hagaman

Dr. George Ketcham Hagaman, prominent pediatrician of Saint Paul, died at Miller Hospital July 11, 1942, following an illness of about three months.

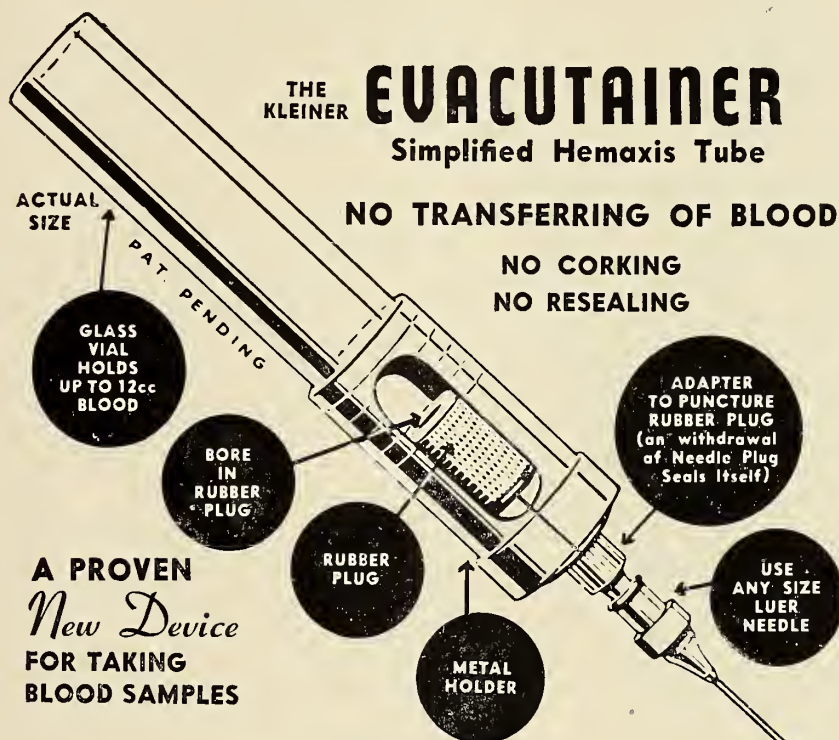
Dr. Hagaman was born December 9, 1875, at Pennington, New Jersey, the son of Joseph Hagaman and Mary Ketcham Hagaman. His parents moved to Saint Paul in 1887. He graduated from the Saint Paul Central High School in the class of 1893 and was then employed by the Great Northern railroad company until the fall of 1899, when he entered the medical department of the University of Minnesota, graduating in the class of 1903. He served as intern in the City and County Hospital of Saint Paul from June, 1903, to June, 1904. Following his internship he moved to Anoka, Minnesota, where he engaged in general practice until 1918. In 1909, he did postgraduate work for a short time in Vienna. In 1918, he spent some time at the University of Minnesota specializing in pediatrics. He then came to Saint Paul where he became associated with Dr. Walter R. Ramsey, and later with Dr. Alexander Stewart. Together they formed the Children's Clinic of Saint Paul which existed until 1928, when the Children's Hospital was built. Dr. Hagaman then established an office by himself and continued so until his death.

In 1904 he married Mary Wilson Fagundus who, with three children, survive him. The children are, George K. Hagaman, Jr., of Pittsburgh, Mrs. Wm. Ives of Baltimore and Mrs. Townsend Corning of Radburn, New Jersey. Four grandchildren also survive.

Dr. Hagaman, at the time of his passing, was a member of the Ramsey County Medical Society, the Minnesota and American Medical Association, and the American Academy of Pediatrics. For many years he served on the teaching staff of the University of Minnesota. In 1937, he served with distinction as president of the Ramsey County Medical Society.

Dr. Hagaman was a successful general practitioner and became one of our leading pediatricians with a large following. He was, in every sense, a physician. An indefatigable worker, he gave of his time and best efforts to all his patients, regardless of their financial status. He was a close observer of patients, and was endowed with a remarkable memory for details of condition of patients, of differential diagnosis and treatment. His genial personality and excellent judgment, his kindness and honesty, combined with an unusual knowledge of medicine, made him outstanding in his specialty.

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STREET

CITY STATE

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

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SILICOSIS AND TUBERCULOSIS

The relationship of occupation to tuberculosis may be considered from two points of view. The first, which has already been discussed in this column, relates to the possibility of the discovery of tuberculosis by survey methods among large groups of workers. The second phase of this problem, which is an important responsibility of industrial medicine, is occupying much thought on the part of public health officials. It relates to the development of tuberculosis as the direct result of an occupational hazard. Whereas in the first group we are concerned with the detection of tuberculosis and the prevention of its spread, in the second group we are interested primarily in the possibilities of prevention of tuberculosis in the individual as a result of the work he is doing.

Silica-free Dust

Tuberculosis as a direct result of occupation is almost entirely concerned with the factor of dust inhalation. As such it has been studied for a great many years, yet the problem is so complex and has so many variables that it is foolhardy to be categorical or dogmatic about it. Certain facts are reasonably well established and give a working basis for further investigation. It seems reasonably certain, for example, that dusts which do not contain substantial amounts of free silica, noxious gases, and poisonous metals do not in themselves tend to increase the incidence of tuberculosis amongst the workers exposed to them. No matter how uncomfortable the working conditions may be, regardless of what other side effects such dusty atmospheres may have, certainly they do not appear to have any bearing on the development or reactivation of a tuberculous infection. It is a common experience to hear the question raised as to the effect of dust in cement plants, flour mills, sawmills, and many other industries of a similar nature. It is well to know that there is no good evidence to indicate that permanent effects result from such occupational dusts. The degree of fibrosis in the lungs is minimal, and the incidence of tuberculosis is no greater among such workers than in the rest of the population.

Tuberculosis Increased

In the case of occupations producing dust containing large quantities of free silica, the picture is radically different. Beginning with the very earliest investigations amongst metal miners up to the most modern experimental studies, the finding that the lung fibrosis resulting from certain types and quantities of siliceous dust, now usually called silicosis, increases the tendency to develop tuberculosis, has been well borne out.

It is true that statements to the contrary have been made in this state as well as in others, but they have usually been based upon a small personal experience and incomplete observation. Too often, unfortunately, the opinions rendered have been overly influenced by the medicological considerations which so commonly becloud this whole subject. There seems no doubt that silicosis increases the incidence of tuberculosis in its victims. This is true whether the worker acquires the silicosis in the granite quarries of Barré, Vermont, where the incidence of tuberculosis is 130 times that of the remaining population, in marble quarries, in metal mines, or in the many other occupations in which the worker is exposed to dust containing free silica.

Variables Should Be Studied

In the consideration of an increased incidence of tuberculosis due to inhaled siliceous dust, numerous factors must be studied. The concentration of the silica, the character of the dust, the size of the particles, the length of exposure, and the presence of carriers of tuberculosis in the group, all are important factors in determining whether or not silicosis will occur and in turn whether the silicosis will increase the incidence of tuberculosis. Furthermore, there are many other variables, not all well understood, which make it difficult to draw conclusions for all localities based upon studies in any one area.

Fortunately in Minnesota the silicosis hazard is not an extensive one, nor does it seem to have had any marked effect upon the incidence of tuberculosis. We know that silicosis occurs to a more or less degree amongst two particularly large groups of workers in this state. Amongst the workers in the quarry industry and amongst the laborers in the iron mines some degree of

(Continued on Page 748)

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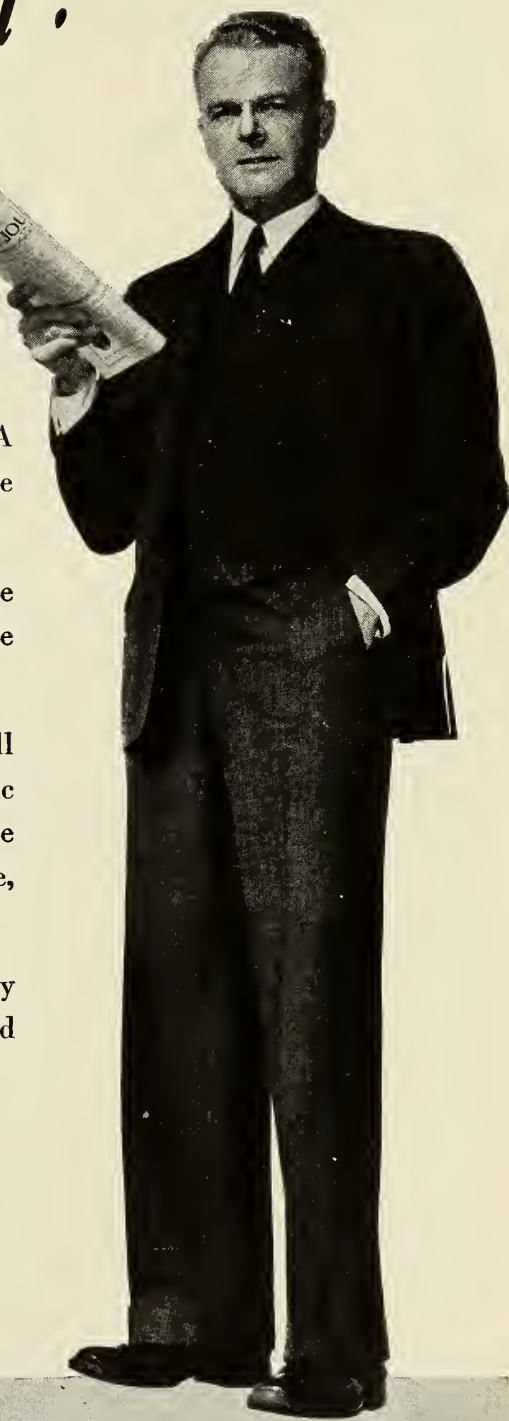
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(Continued from Page 746)

silicosis is likely to be present, at least in a small percentage of the group. Whether this has produced any increased incidence of tuberculosis in these areas has never been accurately ascertained by careful observation.

Incidence in Minnesota

Unfortunately too many of the opinions in this matter have been formed under the stress of legal procedures rather than as a result of any extensive study. It seems perfectly clear that the incidence of silicosis amongst the workers in metal mines in Minnesota, for example, is relatively small, but just what the incidence is, there is little evidence to show. It seems clear also that there are striking differences in the reactions of different groups in various localities to silica inhalation. Because of this, it is impossible to draw any conclusions about any particular industry without a fairly serious investigation of the local conditions within that industry.

One of the tasks which the committee on industrial health and occupational diseases and the State Board of Health has before it is the determination of the real facts in this situation. Clarification of our knowledge as to local conditions would be extremely useful in eliminating many controversial statements which might be undertaken to limit in so far as possible this type of occupational hazard. Such a program of investigation may prove to be a long and arduous one but will repay all the work put into it. In the struggle against tuberculosis, we must concentrate on any source of the disease. In the cases of tuberculosis induced by silicosis, the possibilities of its prevention are fruitful and certainly should be undertaken when the opportunity presents itself.

LEO G. RIGLER, M.D.

CLINICAL-PATHOLOGICAL CONFERENCE

(Continued from Page 731)

which are varied in their location and type of lesion, are seen to be caused by lesions which are primarily intravascular with congestion of sickled red cells and resulting thrombosis. Therefore, any process slowing circulation may convert sicklemia to sickle cell anemia. For treatment, he believes it is necessary to combat circulatory stasis. Many unexplained surgical deaths in negroes can be explained on this basis. The anesthesia results in a slowing down of blood flow and anoxemia. The sickle cells become conglutinated and areas of thrombosis with fibrosis and necrosis occur. Most of the deaths, however, are due to secondary infection. The treatment of sickle cell anemia as far as our present knowledge of the condition is concerned, is symptomatic. Splenectomy has been tried without success. It has been said, "Why do splenectomy when the patients eventually splenectomize themselves."

CORRESPONDENCE

To the Editor:

Our attention has been called to your editorial on "Dilaudid Addiction" in the July issue of MINNESOTA MEDICINE. Of course, we are vitally concerned, as Dilaudid is a product of our manufacture, and therefore would like the privilege of commenting on this editorial.

We certainly agree with you that Dilaudid should be prescribed with care because of its addictive properties and have always recommended this in our advertising literature. Perhaps you would be interested in the folder which is now in current use, a copy of which is enclosed. In it the statement reads:

... "Dilaudid, which is a morphine derivative, should be used with the same precautions as other opiates to avoid respiratory depression and the possibility of addiction." ...

So far as we know, there is nothing in the literature to indicate that Dilaudid is more addictive than morphine. In fact, there are workers who have stated that they believe Dilaudid leads more slowly to addiction than morphine, and that addicts can be taken off the drug more easily than from morphine, but we do not make any claims to this effect. Perhaps the earliest

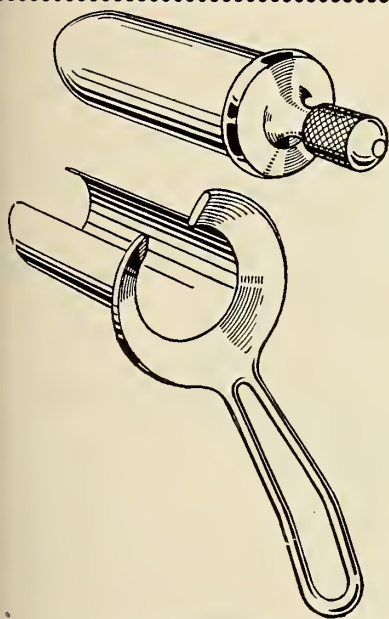
mention of the addictive properties of Dilaudid in the American literature was that by Paul Wolff in the address which he gave at the 1932 session of the American Medical Association in New Orleans (Jour. A.M.A., 98:2175, (June 18) 1932). Wolff was Secretary of the Committee of Experts on Narcotics of the League of Nations and based his remark that

... "It has been shown that it (Dilaudid) leads more slowly to habituation and addiction, and its devotees are therefore more easily cured." ...

on the basis of over nine years experience with Dilaudid by European observers.

There are several interesting studies on the development of tolerance in experimental animals, in which Dilaudid has been compared with other opiates. Among these are Stanton (J. Pharm. & Exper. Therap., 56:253, (Feb.) 1936), Eddy and Reid (J. Pharm. & Exper. Therap., 52:468, (Dec.) 1934), and Seevers (J. Pharm. & Exper. Therap., 56:157, (Feb.) 1936). In all of these studies, there is no evidence that Dilaudid is any more habit forming than morphine, and Seevers went so far as to say that, in his studies on monkeys, he found that signs of abstinence were much more severe with heroin and morphine than with Dilaudid, when doses comparable to those used in clinical medicine were administered.

Naturally, the United States Public Health Service is interested in the addictive properties of all opiates and have carried out several studies in which Dilaudid was included. There is nothing in any of their publications



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which would lead us to believe that Dilaudid is any more addictive than morphine.

We should again like to emphasize our stand that we have recognized the fact that Dilaudid is addictive in our advertising and recommend that it be considered in the same light as morphine, so far as this phase of its action is concerned.

Yours very truly,

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Fred B. Western, M.D.

To the Editor:

At the recent meeting of the Minnesota State Medical Association at Duluth, I noticed a booth assigned to the St. Louis County League for Planned Parenthood, and also two commercial "technical" exhibits of contraceptives including one movie. I feel sure that the State Medical Association has never endorsed the birth control movement.

Now that the proponents of the movement have had an opportunity to present and press their cause before the Association, it is only a matter of fairness that the opponents, of whom I am one of many in the Association, should have an opportunity to present at least some argument. I do not rate my own ability highly, but, while at the Duluth convention, I ran across an article in the June 27 number of *America*, entitled "Race Suicide Means Sheer Loss of Nerve"; its approach to the matter is so refreshing that I wish to present at least the gist of it to the Association:

"Thermopylae was much in the news a year ago. The Greeks were making another glorious, if this time futile, stand, and echoes of Thucydides came back to some of us erstwhile classicists as we followed the dispatches. Yes, there was a 'glory that was Greece,' and it seemed in those dark days to glow with an especial meaning for us.

"But there was once a disgrace that was Greece, too, in the days that followed the heroism of Thermopylae, and that

disgrace has a terrifying meaning for us today, if we can read the pages of history clearminded enough to see it.

"It was a little book by T. R. Glover, *The Influence of Christ in the Ancient World*, that sent me back for another look at this dark period in the history of a declining Greece. It sent me back to the pages of a historian of the times one Polybius, and in the thirty-sixth book of his *History* I found the foreboding message for today. Says he:

"In our own time, the whole of Greece has been subject to a low birth rate and a general decrease of the population, owing to which cities have become deserted and the land has ceased to yield fruit, although there have neither been continuous wars nor epidemics. . . . Men had fallen into such a state of pretentiousness, avarice and indolence that they did not wish to marry, or if married, to rear the children born to them or at most, as a rule, but one or two of them, so as to leave these in affluence and bring them up to waste their substance and so the evil rapidly and insensibly grew."

"Race suicide, birth control, or, to use modern jargon about a very old depravity, planned parenthood, even in the testimony of this pagan writer, was rotting the vitals of Greece, and the Romans came and conquered.

"Now, one eminent authority on those times, Professor Bury, claims that 'loss of nerve' was the mark of that age, and that this race suicide was a sure sign of it. As T. R. Glover comments: 'Life grew more and more of a riddle, and solitary hearts lost faith and lost nerve, and hegot no songs and few children.'

"Now, compare this brief recounting of an historic calamity with a report emanating from London on June 7. Lord Horder, the King's physician, acknowledges the existence of the white race's birth-rate problem and attributes it to 'passive resistance in the production of new citizens. . . . In short, there has been a strike.'

"But there has been no strike against human affection. It still flows in human hearts, only now it is timid and misplaced: Britain, it was brought out in the report, now has 1,500,000 more pet dogs than she had fifty years ago. . . .

"What does this say but that our age, or at least the planned parenthoods of it, are suffering from that same 'loss of nerve' that eventually ruined an ancient and marvelous culture? Far from being a progressive or triumphant movement, birth control is a cringing thing, whose motive force is fear—fear of the economic burdens that children bring, fear of the world into which they must be born, fear of the responsibility their training entails. . . .

"The acceptance of life in its fulness means responsibility, personal responsibility. But that is not a sad thing, it is not depressing, challenging though it be. Herbert Agar, writing

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on 'The Truth Is Good News' in the May *Harper's*, reminds us that 'we cannot win the war without rising above the national responsibility which has given Hitler his advantage over us.' And harking back over the centuries, Mr. Glover discovers that the thing that above all ruined ancient society was the increasing withdrawal of responsibility from the individual.'

'Certainly, one responsibility that modern America is more and more sloughing off in despair, is that preeminently personal one of rearing children generously and gratefully. It cannot continue, if this nation is to continue to be great, not merely in matter of numbers, but above all in the fiber of its national character. For, as the student of the past whom we have been quoting reminds us: 'Men are made great by great responsibilities.' . . .

'Furthermore, with this decline of backbone to live up to duties (merely of good citizenship, let alone of morality) goes the whole basis of democratic life. Have you ever mulled over the striking parallel between the slump in family life (birth control, divorce) and the lessening of intelligent interest in our political life? To vote intelligently is a duty, and most duties ring a burden, but if we as a nation have given up hope in such an intimate thing as the family, how can we keep up hope in that much more impersonal thing, the welfare of the country? . . .

'Birth control is a defeatist propaganda disseminated by those who have lost nerve. Its wide acceptance is a certain sign that a nation is rotting from within and it can be as certain for twentieth-century America as it was for pre-Christian Greece. . . . It is unalterably opposed to the daring and adventurous spirit that has made this nation, and which, under God, must keep it.'

THEODORE H. SWEETSER, M.D.

MEDICAL BROADCAST FOR SEPTEMBER

The Minnesota State Medical Association broadcasts weekly at 10:15 o'clock every Saturday morning over station WCCO, Minneapolis and St. Paul, and at 11:30 o'clock over Station WLB, University of Minnesota. Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

September 5—Swimmers' Itch
September 12—Poison Ivy
September 19—Hay Fever
September 26—Orthodontia.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Southern Minnesota Medical Association will be held in Rochester, Monday, September 28, with a full day's program.

The morning session will be devoted to papers of general interest to the practitioner. The afternoon session will be a symposium on civilian and industrial casualties, consisting of short, to-the-point papers on shock, burns, intravenous therapy, chest wounds, abdominal wounds, fractures, gas gangrene of the extremities, heat stroke, and similar topics.

All interested physicians are cordially invited to attend this meeting.



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OF GENERAL INTEREST

Dr. and Mrs. John L. McKelvey of Minneapolis are the parents of a son, Robert, born June 22.

* * *

Dr. and Mrs. Alphonse E. Walch of Minneapolis are the parents of a daughter, Carolyn Mary, born June 24.

* * *

Dr. C. L. Sherman of Luverne has accepted an appointment as chairman of the medical division of the Rock County Civilian Defense Council.

* * *

Leonard Telford Carlson, Jr., is the name of the young son of Dr. and Mrs. Leonard T. Carlson of Minneapolis, born August 22, 1942.

* * *

Dr. J. Arnold Malmstrom and Dr. O. E. Sarff of Virginia have dissolved partnership in the Malmstrom-Sarff Clinic. Both will continue to practice in Virginia.

* * *

Dr. Samuel Wells, fellow in the University Hospitals, Minneapolis, and Miss Helena Bengtson of Minneapolis were married July 18.

* * *

Dr. Ralph V. Platou, who has been associated in practice with his brother, Dr. Erling S. Platou, has gone to New Orleans to become acting head of the department of pediatrics at Tulane University.

* * *

Dr. Donald Cowan and Dr. Philip D. Kernan of the Students' Health Service, University of Minnesota, spent the first two weeks in August at the Minnesota State Guard training camp at Camp Ripley.

* * *

Dr. William C. MacCarty of Rochester addressed the meeting of the International College of Surgeons in Denver, July 17, on the subject "Diagnostic and Prognostic Surgical Pathology."

* * *

Drs. Berenice and Cecile Moriarty will give a reception and silver tea at their new home, 63 Otis Avenue in Saint Paul, September 20, as a benefit for the Cancer Hospital, which is under the direction of Our Lady of Good Counsel. Hours are from 5 to 8 p.m.

* * *

Dr. Jay Arthur Myers of Minneapolis was chosen president-elect of the American College of Chest Physicians during its recent annual meeting in Atlantic City, and Dr. G. A. Hedberg, Nopeming, was elected a Governor of the College.

* * *

Dr. Robert L. Meller has taken over the offices and practice of Dr. Alexander Blumstein, Minneapolis neuro-psychiatrist who is now in active service. Dr. Blumstein, who has been commissioned a Major, is stationed with the Army Medical Air Corps at Mather Field, Sacramento, California.

Dr. Meller, a graduate of the University of Minnesota Medical School, has his offices at 1541 Medical Arts Building.

* * *

Dr. Arthur E. Karlstrom resigned his position as director of hygiene and health education with the Minneapolis public schools, effective August 17, in order to devote his full time to private practice. Dr. Karlstrom, a pediatrician, has offices at 1600 West Lake Street.

* * *

Two Wells physicians have entered the service of the Navy Medical Corps. Dr. P. W. Demo, who has been commissioned a Lieutenant Commander, reported for duty in Washington, D. C., August 10. Dr. M. P. Virnig, commissioned a Lieutenant, second grade, expects to be in active service before the middle of September.

* * *

Dr. Christopher R. Dix, formerly of Rochester, has opened his offices in Milwaukee, Wisconsin. A graduate of the University of Wisconsin Medical School and the University of Minnesota Postgraduate School, Dr. Dix received the second M.S. degree in Plastic Surgery to be granted in this country. He has been associated with the Mayo Foundation and Clinic since 1937.

* * *

A Red Cross Nutrition Council has been formed in Minneapolis to unify all efforts along food lines. The first general meeting of the council was held at the Curtis Hotel, August 10. Dr. W. A. O'Brien of the University of Minnesota Medical School, discussed the purpose of the council. Among organizations represented was the Hennepin County Medical Society. The council will meet the second Monday of each month.

* * *

Dr. Charles J. Hutchinson, lieutenant commander, U.S.N., is the medical officer in the United States Navy Electricians School at the University of Minnesota. He formerly was assigned to the Minneapolis navy recruiting office, but was detached from duty there four weeks ago to take charge of medical care of students in the Electricians School, one of a number of such schools located at the University. It is expected that 500 men will be taking training there.

* * *

Drs. C. W. Mayo and C. K. Maytum of Rochester, Lieutenant Colonels on the staff of the 71st General Hospital, were in Washington, D. C., last month on a twenty-eight-day tour of duty at the Army Medical Center.

Dr. Mayo is in charge of the surgical section and Dr. Maytum of the medical section of the 71st General

hospital which is sponsored by the Mayo Clinic and the Mayo Foundation.

* * *

Dr. C. L. Farabaugh, for the past three years a fellow and resident in Ophthalmology and Otolaryngology at the University and the Minneapolis General Hospital, has opened offices at 820 LaSalle Building, Minneapolis, for the practice of this specialty.

Previous to entering the fellowship, Dr. Farabaugh practiced medicine in Owatonna, Minnesota, for a number of years. He served in the U. S. Army as a member of the A.E.F. in France during 1918 and 1919.

* * *

Dr. O. E. Sarff of Virginia, formerly associated with Dr. J. Arnold Mahmstrom in the operation of the Mahmstrom-Sarff Clinic at Virginia, is reestablishing his practice in that city and has opened offices for private practice. Dissolution of the clinic was announced several weeks ago when Dr. Sarff received notice that he was to receive a commission in the medical service of the United States Army Air Force. Since then Dr. Sarff has been classified as essential to civilian life in Virginia with priority in the reassembling of necessary medical equipment.

* * *

A new appointment to the full-time staff of the students' Health Service, University of Minnesota, announced by Dr. Ruth Boynton, director, is that of Dr. Ramona Todd, who recently completed her internship at the University of Minnesota Hospital. Dr. Todd was formerly on the staff of the University of Iowa department of bacteriology. She received her Ph.D. from that university.

Appointment of Dr. Myron Weaver, director of the Health Service at Knox College at Galesburg, Illinois, and former director of the Health Service at Carleton College, Northfield, as a staff member was announced earlier this summer.

* * *

Dr. Irvine McQuarrie, head of the pediatrics department at the University of Minnesota Medical School, is giving a series of lectures in California and Arizona this month. He was in Oakland, September 3 and 4, to address a group of Oakland pediatricians.

On September 10 and 11, he will present papers before the meeting of the Southwestern Pediatrics Society at Los Angeles. At the evening session of this society, September 10, he will speak on his "Pediatrics Experiences in China."

On September 14, Dr. McQuarrie will be in Phoenix to address a meeting of the Arizona Pediatrics Society.

To assist in opening the first Kenny unit in the country, Dr. John Pohl of Minneapolis, Sister Elizabeth Kenny, and Dr. William A. O'Brien, director of post-graduate medical education at the University of Minnesota, were in Des Moines recently. The Unit was opened by the Iowa Lutheran Hospital in that city.

Highlight of the opening was a testimonial dinner for Sister Kenny held at the Fort Des Moines hotel, July 29. More than 500 persons, including physicians, nurses and lay persons interested in crippled children

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FRACTURES AND TRAUMATIC SURGERY—Two Weeks Intensive Course will be offered starting September 21st. Informal Course available every week.

GYNECOLOGY—Two Weeks Intensive Course will be offered starting October 5th. Clinical and Diagnostic Courses every week.

OBSTETRICS—Two Weeks Intensive Course will be offered starting September 21st. Informal Course every week.

OTOLARYNGOLOGY—Two Weeks Intensive Course will be offered starting September 14th. Clinical and Special Courses every week.

OPHTHALMOLOGY—Two Weeks Intensive Course will be offered starting September 28th. Five Weeks Course in Refraction Methods starting October 19th. Informal courses every week.

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treatment, attended. Drs. Pohl and O'Brien and Siste Kenny spoke. Motion pictures were shown.

A clinic for visiting doctors was conducted on the morning of July 30.

A Kenny Unit consists of a special section in a hospital where the Kenny treatment of poliomyelitis is carried on by doctors, nurses and technicians trained at the University of Minnesota in Minneapolis.

* * *

Additional promotions in the University of Minnesota Medical School, announced by Dr. H. S. Diehl, dean follow:

Dr. Lawrence R. Boies, promoted from clinical associate professor and director of the division of otolaryngology, to clinical professor and director of the division.

Dr. Walter P. Gardner, from clinical instructor to clinical assistant professor of medicine.

Dr. Herman Kabat, from instructor in physiology to assistant professor.

Dr. John J. Boehrner, from instructor of preventive medicine and public health to assistant professor.

Dr. Louis Sperling, from clinical instructor of surgery to clinical assistant professor of surgery.

Dr. John H. Moe, from clinical instructor in orthopedic surgery to clinical assistant professor.

Dr. John F. Pohl, from clinical instructor in orthopedic surgery to clinical assistant professor.

* * *

Several Minnesota men will be among the speakers at the one hundred and first annual meeting of the State Medical Society of Wisconsin to be held in Milwaukee, September 14-16. Among them are:

Dr. Wallace H. Cole, Saint Paul, "The Kenny Treatment of Anterior Poliomyelitis."

Dr. Arlie R. Barnes of Rochester, "Diagnosis of Pathologic Conditions of the Heart."

Dr. Stuart W. Harrington, Rochester, "Constricting Pericarditis."

Dr. Wesley W. Spink, Minneapolis, "The Clinical Applications and Complications of the Sulfonamides."

Dr. Edgar A. Hines, Jr., Rochester, "Normal Range and Hereditary Factors in Hypertension."

Dr. Elexious T. Bell of Minneapolis, "Pathology of Hypertension." Dr. Bell will also preside over a round table discussion on the "Etiology of Hypertension."

Dr. Edward H. Rynearson, Rochester, "Actual Clinical Disturbances of the Endocrine Glands."

Dr. Herman O. McPheters, Minneapolis, "The Present-Day Treatment of Varicose Veins."

Dr. Thomas L. Pool, Rochester, "The Treatment of Urinary Tract Infections with the Sulfonamide Group of Drugs."

Minneapolis physicians now in the service include the following:

Major Daniel H. Bessessen has been commissioned and is now on duty at Fort Douglas, Utah.

Major Donald W. Pollard has been ordered to duty at Lawson General Hospital, Fort Benning, Georgia. Major Pollard has been granted leave of absence for the duration from his duties as Superintendent of the Minneapolis General Hospital.

Captain Frank C. Andrus has orders to report to

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the Army Medical Center, Washington. During his absence, his work as Pathologist at MGH will be handled by A. J. Hertzog, St. Barnabas Hospital, and Stanley Lofsness, Teaching Fellow at the University.

Captain U. Schuyler Anderson is under orders to report to the Boca Raton Aviation Base, Florida, early next month.

Captain Louis Sperling has reported for duty at Fort Snelling.

Captain Arshavir Ignatius has been commissioned and sent to Atlanta, Georgia, for duty. Captain Ignatius, formerly District Surgeon, CCC, is a Visiting Member.

First Lieutenant Melvin B. Sinykin has been ordered to duty at Fort Douglas, Utah.

Major Allan G. Rewbridge has been assigned to duty with an air corps unit at Fort Douglas, Utah.

Captain Sigsbee R. Seljeskog and First Lieutenant Donald B. Simonson have been assigned to duty at Fitzsimons General Hospital, Denver.

First Lieutenant Harvey J. Brekke's orders took him to Camp Carson, Colorado.

Dr. C. J. Holmberg is head of the ear, nose and throat division of the new medical corps unit recently organized at Camp Custer, Michigan. He holds the rank of Major.

* * *

Among physicians in the state who have been called to service with the United States Army the past month are the following:

Dr. E. V. Allen of Rochester, upon completion of a six weeks' assignment in the office of the Surgeon General and in the Walter Reed Hospital, Washington, D. C., will become medical consultant and coordinator of professional services of the Seventh Service command with headquarters in Omaha. He is a Lieutenant Colonel in the Army Medical Corps.

Dr. Frederick P. Arny of Preston has been commissioned a First Lieutenant and reported for duty August 21.

Dr. Norman Carlson of Melrose, First Lieutenant, is located at Carlisle Barracks, Pennsylvania.

Dr. George M. Ruggles of Forest Lake, Captain, reported for duty August 24.

Dr. Harold Stoen of Milan is in service at Colorado Springs, Colorado.

Dr. Phillip S. Hensch left Rochester August 6 to report for active duty with the medical corps, having been commissioned a Lieutenant Colonel. After preliminary assignment at Fort Custer, Michigan, he expects to be transferred to the station hospital at Camp Carson, Colorado Springs, Colorado.

Dr. E. C. Paulson, who has been associated with Drs. Parson and Parson at Elbow Lake the past year, has entered the Army Medical Service and is stationed at the Air Base Hospital, Portland, Oregon.

Dr. James A. Blake of Hopkins has enlisted in the Army with the commission of First Lieutenant. His father, Dr. James Blake, will continue the practice at the Blake Clinic, in which the two have been associated.

Dr. Wallace Beckman of Richfield is now stationed at a camp in Washington state.

Dr. J. E. Haes of Vernon Center has been accepted

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in the Army aviation corps. He will enter active duty
on September 13.

Dr. J. C. Vezina of Mapleton has received his ap-
pointment as captain of the medical corps in the Min-
nesota State Guards and has been assigned to the medi-
cal detachment of the Third Regiment located at
Mankato.

HOSPITAL NEWS

The city of Redwood Falls last month purchased the
Redwood Falls hospital from Dr. T. E. Flinn and
Dr. J. Gordon Cole.

* * *

According to an announcement made by Lt. Comm.
Douglas Campbell, a 250-bed hospital is soon to be
erected at Wold-Chamberlain naval air base. The site
of the new hospital consists of the area included in
three double-length city blocks along Fifty-ninth Street
and the present north boundary of the field.

* * *

The Windom Hospital Association, through a me-
morial donation of \$500 received from the estate of
Peter J. Velve of Jackson County, will furnish a
double room in the hospital.

* * *

The annual meeting of the staff of the St. Cloud
Hospital was held in that city, July 14. Speakers in-
cluded Raymond Amberg, superintendent of the Uni-
versity of Minnesota Hospitals, and Dr. William A.
O'Brien, director of postgraduate medical education at
the University of Minnesota.

* * *

At the annual meeting of the Ortonville Evangelical
Hospital the following were elected to the Board of
Directors: Rev. L. C. Milliken, Big Stone City; John
H. Iszler, Twin Brooks; Otto Krueger, Millbank. Of-
ficers elected are: President, Rev. Charles W. Zech,
Watertown; vice president, Rev. L. C. Milliken Big
Stone City; secretary-treasurer, Paul Trapp, Jr., Big
Stone City; Superintendent, Helen Flemming.

* * *

The first hospital in this country to be devoted
entirely to Sister Kenny's infantile paralysis treatment
will be opened in Minneapolis this month. It is the
Sheltering Arms hospital on West River Road near
Forty-second Street, which will be operated by St.
Barnabas hospital, oldest in Minneapolis. In recent
months, St. Barnabas hospital has been treating an
increasing number of polio patients with a staff trained
by Sister Kenny.

Priorities on essential materials to remodel the hos-
pital have been granted, and work is going forward
to revamp the building into a 40-bed hospital for
polio patients. Remodeling costs will run about \$30,000.
If necessary, the hospital can later be developed to
100 beds. Sumner T. McKnight is chairman of the
building committee.

Heading the staff of the Kenny institution will be
Miss Nellie Gorgas, formerly of the University of Chi-
cago clinic hospitals; Dr. Wallace A. Cole, professor
and director of the division of orthopedic surgery at
the University of Minnesota, and Dr. Miland E.
Knapp, director of the division of physical therapy at
the University of Minnesota.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

WAR MEDICINE. A symposium. Winfield Scott Pugh, M.D., Editor; Commander (M.C.), U.S.N. Retired; formerly Surgeon, City Hospital, New York City; Associate Editor, Edward Podolsky, M.D.; Technical Editor, Dagobert D. Runes, Ph.D. 565 pages. Illus. Price, \$7.50, cloth. New York: Philosophical Library, Inc., 15 E. 40th St., 1942.

PSYCHOTHERAPY IN MEDICAL PRACTICE. Maurice Levine, M.D. Attending Psychiatrist, Cincinnati General Hospital; Assistant Professor of Psychiatry, University of Cincinnati College of Medicine; Training Psychoanalyst, Chicago Institute for Psychoanalysis; Diplomate of American Board of Psychiatry and Neurology. 320 pages. Price, \$3.50, cloth. New York: The Macmillan Co., 1942.

SYNOPSIS OF PATHOLOGY. W. A. D. Anderson, M.A., M.D. Assistant Professor of Pathology, St. Louis University School of Medicine; Pathologist to St. Mary's Group of Hospitals. 661 pages. Illus. Price, \$6.00, flexible binding. St. Louis: C. V. Mosby Co., 1942.

EMERGENCY CARE. Marie A. Wooders, B.S., R.N., Principal, School of Nursing, Hackensack Hospital, Hackensack, N. J.; and Donald A. Curtis, M.D., Lt.

Col. Medical Reserve, Commanding 342nd Medical Regiment, United States Army; Instructor in Military Nursing, Hackensack Hospital. 560 pages. Illus. Price, \$3.50, cloth. Philadelphia: F. A. Davis Co., 1942.

CLINICS. Vol. 1, No. 1. (Semi-monthly. Successor to New International Clinics). George Morris Piersol, M.D., Editor. 264 pages. Illus. Price, \$12.00 per year, \$2.00 per issue; cloth bound, \$16.00 per year, \$3.00 per issue (by subscription), 50c additional for foreign and Canadian postage. Philadelphia: J. B. Lippincott Co., 1942.

FRACTURES, DISLOCATIONS AND SPRAINS. John Albert Key and H. Earle Conwell. 3rd Ed. 1303 pages. Illus. Price, \$12.50, cloth. St. Louis: C. V. Mosby Co., 1942.

Since the publication of the first edition of this book in 1934, it has become one of the standard guides for the treatment of traumatic injuries. The new third edition follows the comprehensive scope of the original work. The opening paragraph of the first chapter strikes one as being particularly pertinent and should be read by every doctor who is responsible directly or indirectly for the treatment of fractures in various hospitals. "One of the principal reasons for the poor results so frequently seen in the treatment of fractures and one of the reasons why so many men who see an occasional fracture dislike to treat it is that adequate fracture treatment cannot be carried out efficiently and successfully without apparatus, and at the present time

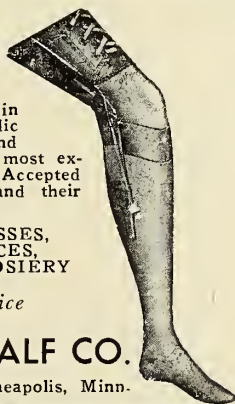


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in the majority of general hospitals in this country there is a real lack of the necessary apparatus for the proper handling of fracture cases."

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In many instances several methods of treatment are mentioned for one particular injury without the benefit of the authors' experience as a guide. Aside from this, the book is a comprehensive and safe reference for the general practitioner who necessarily treats the major share of these conditions. In time of war with a possible augmentation of injuries to the civilian population,

a work of this nature should be on every practitioner's shelf.

S. S. HOUKOM, M.D.

THE CARE OF THE AGED (Geriatrics). Malford W. Thewlis. Fourth Edition. 589 pages. Illus. Price \$7.00. St. Louis: C. V. Mosby Co., 1942.

The fact that this excellent book has passed from the third edition to the fourth edition in one year bespeaks the increasing interest in Geriatrics and the belief that this author has admirably catalogued the practical therapeutic connotations.

The new edition fortunately does not add materially to the size of the book, but certain items such as Chemotherapy in Surgery have been added apropos of the recent war experiences. The book contains a wealth of general information. It becomes a compact review of present-day therapy for disease. The chapters are well supported by references. The author and his associates have evidently surveyed all the available current literature dealing with the problems arising from age extension. The book does not aim (as does Cowdry's Compilations, for example) to cover extensively the biological, chemical, and psychological aspects of aging.

You will nevertheless make no mistake in adding the book to your library.

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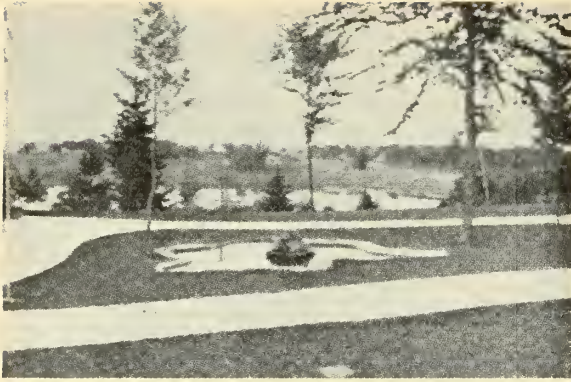
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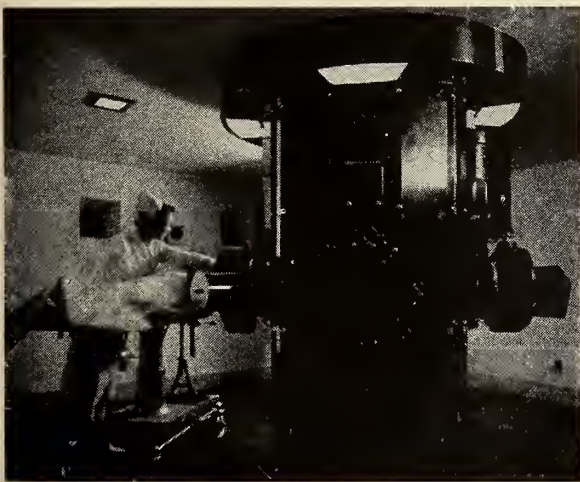
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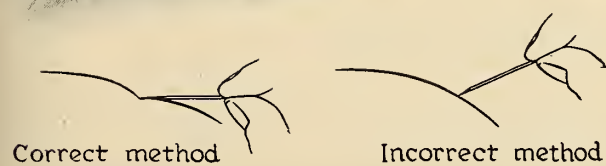
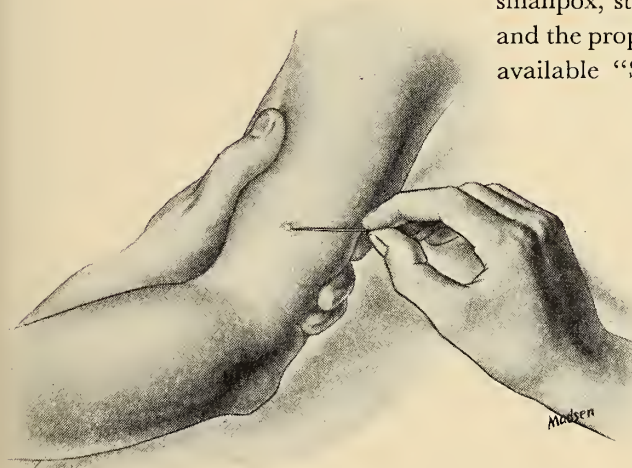
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¹Pub. Health Rep. 57:23,24 (Jan. 2) 1942.
²TOOMEY, J. A.: J. A. M. A. 119:18 (May 2) 1942.



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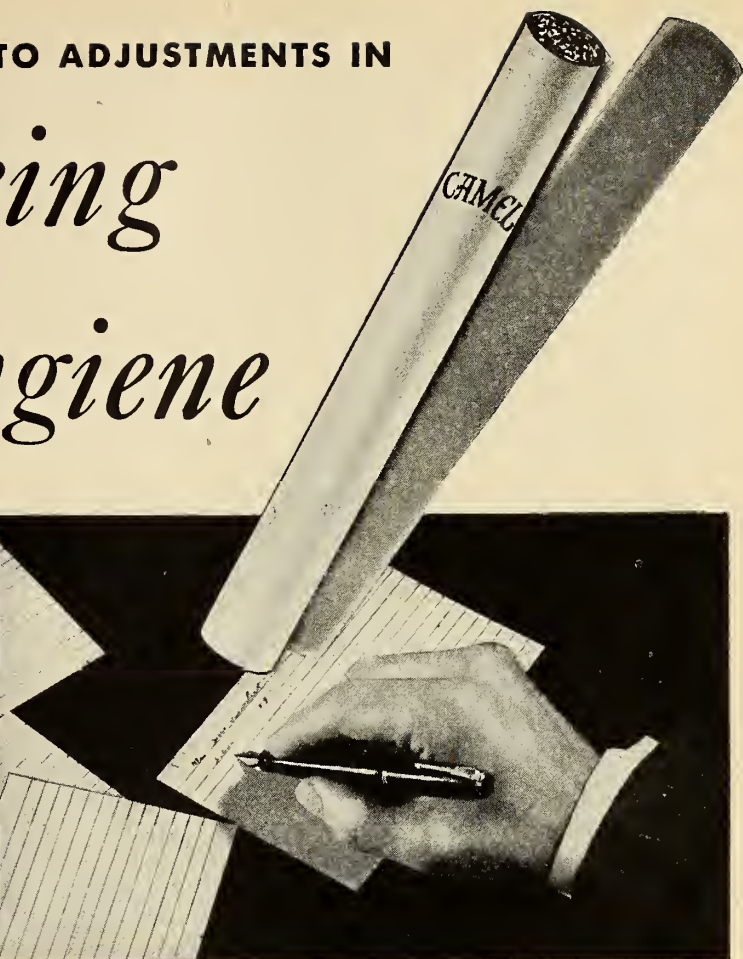
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**The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941*
J.A.M.A., 93:1110—October 12, 1929
Brückner, H.—Die Biochemie des Tabaks, 1936

★

"THE CIGARETTE, THE SOLDIER, AND THE PHYSICIAN," *The Military Surgeon*, July, 1941. Reprint available. Write Camel Cigarettes, Medical Relations Division, 1 Pershing Square, New York City.

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* *Laryngoscope*, Feb. 1935, Vol. XLV, No. 2, 149-154
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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* N. N. R. 1941, p. 328.

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By THOMAS L. LUZIER

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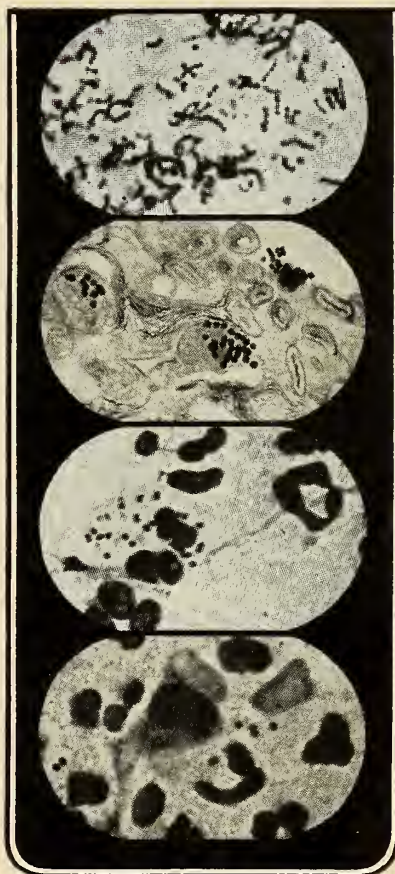
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MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 25

October, 1942

No. 10

THE PRESENT STATUS OF THE HEMORRHAGIC DISEASES

ARMAND J. QUICK, Ph.D., M.D.

Milwaukee, Wisconsin

IT required a vitamin to stimulate a new interest in the hemorrhagic diseases. Due to vitamin K, a more optimistic outlook has been taken on the ultimate conquest of all the bleeding diseases. It seems timely, therefore, to outline the present status of our knowledge concerning the group of diseases in which hemorrhage plays a predominant role.

That there has been progress in this field of medicine is obvious to all who follow the current medical literature. The advance has been three-fold:

1. The concept of the physiology and pathology of hemorrhage and of hemostasis has been clarified and freed of futile and needlessly complex theories.
2. The diagnosis of bleeding conditions has been made more accurate by newer laboratory tests.
3. Therapy has been improved, and in the bleeding of jaundice and of the newborn has actually been revolutionized.

The hemorrhagic diseases can be divided into two major classes: (1) the true, in which the defense mechanism against hemorrhage is defective; and (2) the group of diseases in which hemorrhage is a prominent symptom, but the hemostatic process is normal. This second class can be dismissed without much comment since the basic defect is anatomical. In this category can be included traumatic injury of blood vessels such as occur in gastric ulcer, in tuberculosis, in malignancy, or in esophageal and anal varices.

From the Department of Pharmacology, Marquette University School of Medicine. Presented at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 29, 1942.

Likewise, hereditary telangiectasia and scurvy can be put into this group since in these conditions the defect in the vessel is anatomical—the physiological reactions of hemostasis are essentially normal.

To understand the true hemorrhagic diseases it is necessary to know what constitutes the mechanism of hemostasis. The latter process is best presented by following the course of events in a blood vessel that is injured or severed. The first reaction is a marked constriction, which often brings about a complete but temporary arrest of bleeding. This vascular response is of greatest importance, for it is during the contractive phase that the permanent plugging of the vessel is effected. It should be emphasized that it is the coagulation within the vessel that is responsible for effective hemostasis.

For purposes of presentation, the coagulation reaction can be expressed by two simple equations:

(1) Prothrombin calcium + thromboplastin = thrombin

(2) Fibrinogen + thrombin = fibrin (clot)

Actually the mechanism is much more complex and involves many poorly understood factors. Prothrombin occurs exclusively in the plasma and according to recent findings is a compound of calcium. The latter element is essential for its conversion to thrombin, since decalcifying agents such as oxalates and citrates render it inactive. Thromboplastin is exclusively an intracellular product. It is widely distributed within the body, but it is the fraction that comes from the platelets that plays the dominant role in coagulation.

The platelets have multiple functions in hemos-

tasis. Not only do they furnish thromboplastin, but they appear to serve as the cementing material that binds the fibrin to the injured vessel wall. A deposit of agglutinated platelets on the roughened or traumatized endothelial lining precedes the formation of fibrin, and serves to anchor the strands of fibrin. The platelets too are responsible for clot retraction which gives firmness and tenacity to the fibrin plug. But most important of all, the platelets are related to the contractive response of the vessels to injury.

The significance of the platelets in hemostasis is best illustrated by thrombocytopenic purpura. In this disease enough thromboplastin is usually available to maintain a normal coagulation time so that a fibrin clot can be produced, yet hemostasis is markedly defective. In the first place, due in all probability to the diminished number of platelets, the vascular contractive response is impaired, as shown by the prolonged bleeding time. The blood continues to flow freely from the dilated vessel and no opportunity is afforded for the formation of a clot within the lumen. In the second place, a lack of cementing substance needed to bind the fibrin strands to the injured vessel wall will result from the paucity of platelets, and likewise the retraction of the clot will not occur. As a result the clot will be friable, and poorly attached, so that its hemostatic value will be very poor. It is easy to understand, therefore, why hemorrhage in thrombocytopenic purpura is difficult to control.

In hemophilia the platelets likewise appear to be the causative factor of the disease. While they are normal in number, they appear to be unduly resistant to lysis and, therefore, liberate thromboplastin too slowly for effective coagulation.

In pseudohemophilia, a disease characterized by being definitely hereditary and by a prolonged bleeding time, the platelets also have been suspected of being responsible for the hemorrhagic tendency, but it is probable that the defect is intrinsically in the minute vessels themselves.

As stated before, the plasma furnishes two factors for coagulation: fibrinogen and prothrombin. The former can be dismissed from consideration, since it is exceedingly rare to find a bleeding diathesis due to lack of fibrinogen. Prothrombin deficiency, however, is of greatest importance.

It has been found that the body depends on vitamin K for its synthesis and that the site of its production appears to be the liver. It has further been observed that a coumarin derivative obtained from spoiled sweet clover hay causes a depletion of the prothrombin of the blood, and very recently an idiopathic hypoprothrombinemia, apparently congenital, has been reported. The latter type is especially worthy of notice since the condition simulates hemophilia, and can easily be mistaken for it.

The hypoprothrombinemias can be outlined as follows:

- A. Diminished prothrombin (prothrombinopenia)
 - (a) Lack of Vitamin K
 - 1. Dietary origin (lack of bacteria in intestines)
 - (i) Hemorrhagic disease of the newborn
 - 2. Failure of absorption
 - (i) Absence of bile salts in the intestines
 - Biliary obstruction
 - Biliary fistula
 - (ii) Intestinal disorders
 - Nontropical sprue
 - Ulcerative colitis
 - Prolonged diarrhea, etc.
 - (b) Poor utilization due to liver damage
 - 1. Chronic cirrhosis due to prolonged biliary obstruction
 - 2. Acute hepatitis (yellow atrophy)
 - 3. Chronic atrophic cirrhosis (Laennec)
 - 4. Hyperpyrexia (artificial fever)
 - (c) Toxins
 - 1. Spoiled sweet clover disease of cattle
 - (d) Essential or idiopathic (probably congenital)

With this clearer understanding of the nature of the more common hemorrhagic diseases, it is possible to outline the differential diagnosis on the basis of laboratory tests. It must be stressed, however, that clinical observations and the medical history are also necessary for arriving at an accurate diagnosis. Thus bleeding into deep structures, i.e., into muscles and joints, usually occurs when coagulation is defective. Hemophilia, and apparently idiopathic hypoprothrombinemia are the diseases in which for instance hemarthrosis is frequently encountered. Bleeding into the skin and oozing from mucous membranes is usually associated with diseases in which the vascular response is impaired. Thrombocytopenic purpura is the best example of this class. It might be mentioned that the petechiæ are the characteristic lesions in this disease. Ecchymoses are found, in contrast, in all hemorrhagic diseases.

In the history, the sex of the patient, the time of onset, the frequency of attacks, and the nature of the bleeding supply important information, but of greatest significance is the hereditary history. There are three bleeding diseases which are inheritable. These can be outlined as follows:

- I. Hemophilia
 - Sex-linked—recessive
 - Transmitted only by female
 - Occurs only in males
- II. Pseudohemophilia
 - Sex-linked—dominant
 - Transmitted by and occurs in both sexes
- III. Telangiectasia
 - Non-sex-linked—dominant
 - Transmitted by and occurs in both sexes

The laboratory tests are essential for diagnosis. Fortunately the common methods are simple and few in number. The following outline should serve as a helpful guide:

1. Prolonged coagulation time
 - (a) In hemophilia
 - (b) In the hypoprothrombinemias
 - (c) In marked reduction of plasma fibrinogen
2. Prolonged coagulation time of recalcified plasma.¹
 - (a) In hemophilia (characteristically influenced by the rate at which the blood is centrifuged)
 - (b) In the hypoprothrombinemias
 - (c) In thrombocytopenic purpura occasionally
3. Prolonged bleeding time
 - (a) In thrombocytopenic purpura
 - (b) In pseudohemophilia
4. Absence of clot retraction
 - (a) In thrombocytopenic purpura
 - (b) In pseudohemophilia occasionally
5. Reduced platelet count
 - (a) In thrombocytopenic purpura
6. Positive tourniquet test
 - (a) In thrombocytopenic purpura
 - (b) In pseudohemophilia occasionally
7. Reduced prothrombin concentration in the plasma
 - (a) See outline of prothrombin deficiencies

In using this outline, it must be remembered that exceptions can and do occur. Thus, for instance the bleeding time is sometimes prolonged in hemophilia. Nevertheless if these tests are carefully applied a reasonably accurate diagnosis can usually be made.

The fact that no specific cures for the hemorrhagic disease have been found except for the hypoprothrombinemias, does not signify that progress has not been made in this group of clinical entities.

For essential thrombocytopenic purpura sple-

nectomy still remains the most dependable therapeutic measure. The chief problem, however, is the differentiation of the idiopathic from the secondary purpuras. It is well to recognize that only a relatively small fraction of the hemorrhagic purpuras are primary. It is, therefore, of major importance to investigate the cause of the purpura. Infections, blood dyscrasias and allergy appear to be the most important factors in the secondary purpuras. It is well to bear in mind that thrombocytopenic purpura is frequently caused by drugs, of which the sulfanilamide group is no exception. Other types of allergy likewise appear to be responsible for producing hemorrhagic purpura. At our present stage of knowledge, removal of the cause is the most effective cure.

Specific therapeutic agents are still lacking. Vitamin C has been disappointing in all cases except in frank and sub-clinical scurvy. Vitamin P may perhaps be effective in certain types of purpura such as senile, but it seems to be useless in true Werlhof's disease. Epinephrine and related substances, such as stryphnon, have been used in European clinics and some success has been reported.

Many cures for hemophilia have been proposed, but so far none has stood the test of time. At present the injection of oxalic acid is attracting some attention. A little over two decades ago similar results were reported following the intravenous administration of sodium citrate. Why this treatment was abandoned is not clear. Perhaps further research is indicated.

While no clue for hemophilia is in the offing, much can be done for the hemophilic patient. Supervision of play and later guidance as to occupation to minimize the hazard of trauma goes a long way in the prevention of disabling deformities.

The treatment of hypoprothrombinemia with vitamin K has been discussed so much that only a few remarks seem necessary. In obstructive jaundice and in biliary fistula treatment with bile salts and menadione by mouth is usually sufficient. To be sure, the prothrombin content of the blood must be repeatedly determined and any operation should be postponed until the level is at least 70 per cent of normal. If the absorption of vitamin K is apt to be impaired by factors such as diarrhea, or if the patient is unable to retain food, menadione in oil should be given intra-

muscularly, or a water-soluble derivative given intravenously.

In liver disease the prothrombin may be low and vitamin K alone may be ineffective in raising the level. Treatment of the liver condition to restore hepatic function is the most logical course. Intravenous injection of glucose is still the most reliable means to treat hepatic dysfunction.

The treatment of the hemorrhagic disease of the newborn with vitamin K constitutes an important advance in pediatrics. The fact that the hypoprothrombinemia during the first few days of life can be prevented by giving vitamin K to the mother shortly before the birth of the baby is of utmost significance. Even though the incidence of hemorrhage in the newborn is low, the danger is present nevertheless, and therefore the routine practice of giving the mother 2 mg. of menadione in oil daily during the last week of pregnancy is certainly to be recommended. It is to be regretted that occasionally efforts are being made to belittle the value of vitamin K.

No effort will be made to discuss the treatment of the rarer hemorrhagic diseases. One should discuss at least briefly the most universally used therapy in the hemorrhagic diseases, namely blood transfusion. Apparently it is of value in nearly every type of bleeding diathesis. In addition to restoring blood volume and improving the anemia it assists in restoring the hemostatic response. Whether the new supply of platelets of the transfused blood is responsible for its effectiveness in purpura is not known definitely. In hemophilia the new blood perhaps affects the sta-

bility of the hemophilic platelets. In hypoprothrombinemia it restores at least partially the prothrombin level. Usually, however, the beneficial effect is only temporary.

Genetic considerations are important in the hereditary bleeding diseases. Hemophilia occurs principally in English and northern European stock. Due to the tendency toward small families in these races and the fact that hemophilia is inherited as a sex-linked, recessive characteristic, the disease has probably decreased although accurate figures to substantiate this statement are not available. Pseudohemophilia is a relatively rare disease, but the heritability of this disease is an unescapable fact. Telangiectasia is perhaps the most serious since it is transmitted as a non-sex-linked dominant. It does not seem to be generally recognized that this entity is a serious disabling disease.

The problem of handling a hereditary disease is difficult. Education, especially of the members of families in which a hemorrhagic disease occurs, is at least an essential preliminary step. They should be impressed with the seriousness of these diseases, and the responsibility that is theirs.

In conclusion, marked strides have been made in the hemorrhagic diseases, but much remains to be done. At present only part of the groundwork has been completed, but already the gully of misunderstanding which has separated the laboratory from the clinic has been closed.

Reference

1. Quick, A. J.: The diagnosis of hemophilia. *Am. Jour. Med. Sci.*, 201:469, 1941.

MENIERE'S DISEASE

J. R. LINDSAY, M.D.

Professor of Otolaryngology, University of Chicago
Chicago, Illinois

THE terms Ménière's symptom, symptom complex and Ménière's disease have been used in a very broad sense until recent years. There has been a tendency to include under this general heading attacks of vertigo which could be attributed to various causes: for instance, toxic labyrinthitis, hemorrhage, thrombosis and other conditions. It has been known from clinical ob-

servations for many years that a definite syndrome existed consisting of recurring attacks of vertigo, associated with auditory disturbances also fluctuating in nature, which could only be explained by a disease involving the inner ear or the eighth nerve. Accumulating information in the last few years indicates that this syndrome is due to a pathological entity in the internal ear known as labyrinthine dropsy (hydrops labyrinthi, dilatation of the endolymphatic spaces). This

From the Division of Otolaryngology of The University of Chicago. Presented at the annual meeting of the Minnesota State Medical Association at Duluth, Minnesota, July 1, 1942.

constitutes the clinical entity which is now generally known by the name of Ménière's syndrome and because of the definite pathological lesion it seems that the name Ménière's disease is warranted.

disease have been described. Each case demonstrated the same inner ear pathology. In addition five ears with the same pathology have been described, two by myself, in which only deafness was known to have existed but in which there

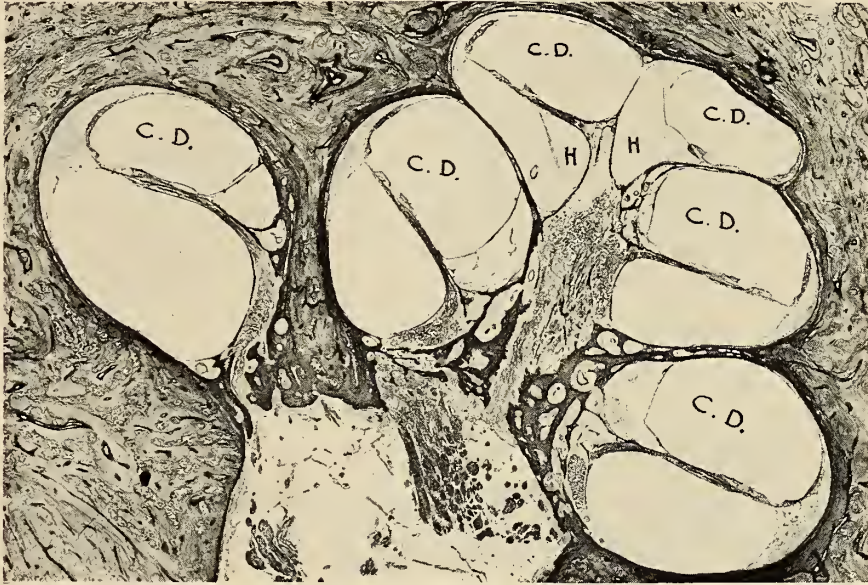


Fig. 1. Photomicrograph of section of the cochlea in advanced labyrinthine dropsy in male of sixty-seven years. The cochlear duct (C.D.) is dilated almost to the point of obliteration of the scala vestibuli, and herniates through the helicotrema into the scala tympani (H). The neural elements are well preserved for the age period.

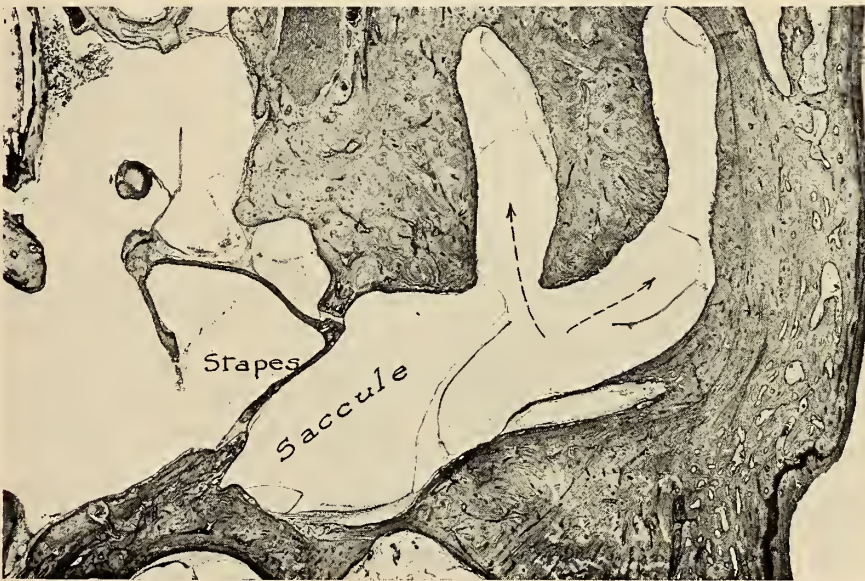


Fig. 2. Section through the vestibule in the opposite ear to Figure 1. The greatly dilated saccule lies against the stapes footplate. The utricle has herniated to some distance into the semicircular canals (arrows).

Pathology

The first observations of inner ear pathology were made by Hallpike and Cairns in 1938. Since that time a total of six proven cases of Ménière's

was a possibility that vertigo may have been present in earlier years.

The pathological picture consists of a generalized dilatation of the endolymphatic spaces in the

inner ear. Because of variations in thickness of the walls of the membranous labyrinth, the dilatation occurs in certain areas where resistance is less, namely, the cochlear duct and the saccule and utricle in the vestibule (Figs. 1 and 2).

the disease deafness may become severe and involves all frequencies.

The attacks of vertigo tend to decrease after a few years and may disappear but the deafness persists or may progress. This late stage in

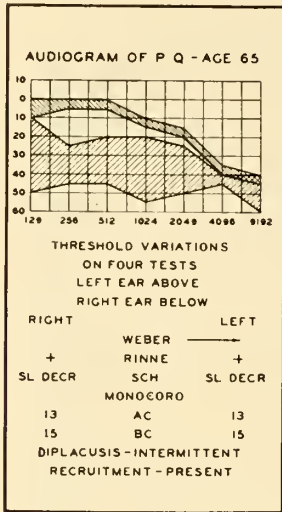


Fig. 3. Composite audiogram of a case of Ménière's disease in the right ear showing the range of fluctuation in the hearing. The patient had some high tone loss in both ears, but the fluctuation with attacks affects mainly the lower frequencies. Bone conduction tended to vary directly with air conduction.

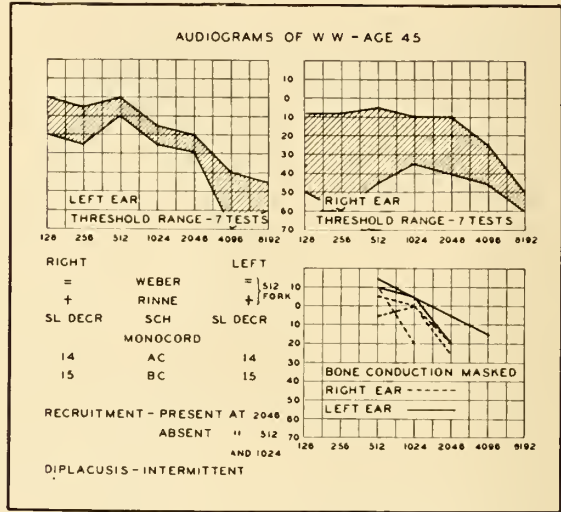


Fig. 4. Ménière's disease in right ear of 65-year-old male. The composite audiogram shows the variation in the hearing threshold in the affected ear (below) as compared to the good ear (above).

The fluctuation in the hearing for low tones is characteristic. The high tone loss is not a constant finding in this disease (See Figure 5).

The high tone limit as shown by the monochord remains nearly normal until the late stage of the disease (Figure 6).

This pathological entity provides a basis for the clinical syndrome of associated disturbances of hearing and equilibrium.

The histological picture does not explain the pathogenesis, however, nor is the etiology clear.

Symptoms

The classical syndrome in Ménière's disease consists of a sense of blockage or increasing noises, and increasing impairment of hearing in the affected ear, followed by an attack of vertigo. The vertigo may be sudden or may develop more slowly, giving time for the patient to protect himself against falling. Nausea and vomiting occur in the severe attacks. There is great variation in frequency, duration and severity of the vertigo. Other symptoms such as constipation, headache, fatigue and depression may precede an attack and perspiration and diarrhea accompany the vertigo. After the attack all symptoms may leave and the hearing improves. The fluctuations in hearing involve the lower tones. Variations of 30 and 40 decibels before and after an attack are common (Figs. 3 and 4). In later stages of

which only deafness is evident may occupy many years and if seen at such a time the true nature of the ear disease might be unsuspected.

Etiology

The cause of labyrinthine dropsy or hydrops of this type is not clear. Hydrops is known to occur in certain inflammatory diseases of the middle and inner ear and in certain diseases of the bony labyrinth capsule, but these conditions have been absent in Ménière's disease.

Since epithelial structures exist within the membranous labyrinth which apparently have the function of secreting and removing endolymph, some interference with their function might be expected, but histological examination has not demonstrated any definite lesion of these structures.

On the basis of clinical observation it is known that the syndrome appears in people with low blood pressure, vasomotor instability, headaches, and gastro-intestinal disturbances. It seems likely that the vasomotor disturbances may affect the capillaries in the stria vascularis or the aque-

uctus endolymphaticus in the inner ear, resulting in an increase in the amount of endolymph.

Diagnosis

In the presence of the complete syndrome of attacks of vertigo associated with fluctuations in hearing and other auditory symptoms the diagnosis of Ménière's disease is usually not difficult. Those conditions requiring differentiation are: tumors involving the eighth nerve or temporal bone, hemorrhage or thrombosis of vessels supplying the labyrinth, toxic labyrinthitis or eighth nerve neuritis, specific inflammatory disease such as syphilis, granuloma, injuries.

An acoustic tumor is easily distinguished by the steadily progressive or profound nerve deafness, frequent attacks of vertigo, absent vestibular responses, enlargement of the internal auditory meatus on x-ray examination and the involvement in later stages of other cranial nerves.

Tumor of the temporal bone other than eighth nerve tumors usually invade the air cell system and affect the middle ear. If vertigo occurs in attacks the fistula test is likely to be positive. All symptoms tend to be steadily progressive rather than fluctuating as in Ménière's disease, and the x-ray provides evidence of bone erosion.

Syphilis, particularly of the congenital type, frequently produces an osteitis and progressive labyrinthitis. Vertigo may occur in attacks and the fistula test become positive. Deafness progresses rapidly without fluctuations, other stigma of the disease may be present and the serology of the blood or spinal is usually positive.

Hemorrhage or thrombosis affecting the vessels supplying the labyrinth results in a severe attack of vertigo, nausea and vomiting with profound nerve deafness. The deafness is permanent and recovery from the vertigo requires a period of weeks during which compensation gradually develops. There is usually permanent loss of vestibular responses in the affected ear. A similar course of events is characteristic of hemorrhage into the labyrinth in severe skull trauma, also of a basal skull fracture involving the labyrinth.

Greater difficulty may be experienced in differentiating some cases of toxic involvement.

A neuritis of the acoustic division of the eighth nerve is common after mumps and occasionally after some other infections. The vestibular division usually escapes but may be affected also. Complete permanent deafness of one ear is fairly

common and occasionally vertigo and loss of vestibular function. Certain drugs such as quinine, salicylates, and less frequently alcohol and tobacco have a tendency to affect the eighth nerve and produce vertigo and auditory symptoms.

A few cases have been reported in which attacks of vertigo and impaired hearing occurred in connection with allergic attacks. Some evidence of allergy is not uncommon in people with Ménière's disease, but the impression that the disease is to be considered as an expression of allergy is unwarranted.

Attacks of vertigo without any auditory disturbances may present a more difficult problem of diagnosis.

In order to localize the lesion definitely to the peripheral vestibular apparatus it is necessary to have associated auditory disturbances. On the other hand certain characteristics of the vertigo; nystagmus which occurs only on directing the gaze away from the resting position and always in the direction of gaze; a postural vertigo in which the nystagmus changes its direction or is irregular in direction; a marked discrepancy between the amount of vertigo and the degree of nystagmus, also oblique or vertical nystagmus is usually central in origin.

The conditions to be differentiated as causes for vertigo without auditory disturbances include early brain tumors, degenerative diseases of the central nervous system, such as multiple sclerosis and syringomyelia, encephalitis, hemorrhage and thrombosis, post-concussion syndrome, arteriosclerosis, hypertension and hypotension. While the characteristics of the nystagmus may be sufficient to place the lesion centrally the diagnosis in most of these conditions depends upon the presence of associated central nervous system signs and other indications of the particular disease.

While a central nervous system lesion which would produce only vertigo must be very limited in extent it appears that in addition to specific vascular lesions such as the posterior inferior cerebellar artery syndrome, small vascular lesions may occur in the central nervous system in arteriosclerotics, producing vertigo as a chief symptom. These usually have a sudden onset and slow gradual recovery.

Hypertension is associated with frequent vertigo, usually of short duration. Defective circula-

tion is likely to be associated with vertigo on changing from the lying or sitting to the erect posture.

Recurring attacks of vertigo, frequently postural in character, without auditory disturbances

the third stage after vertigo attacks had subsided, leaving advanced deafness (Fig. 6).

Treatment

Good results have been obtained by both medical and surgical therapy. The most successful

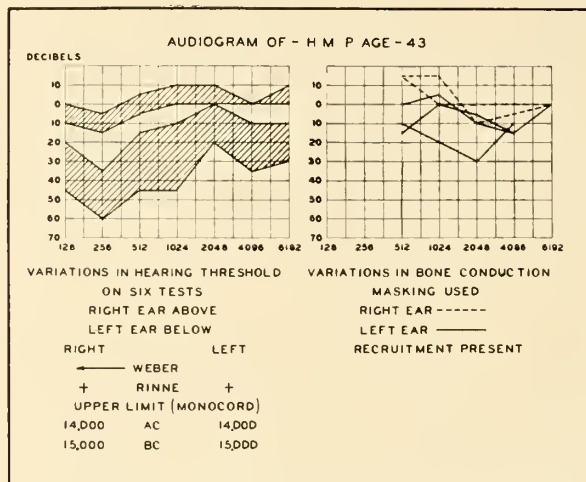


Fig. 5. Composite audiogram in Ménière's disease in the left ear. Threshold for high tones and upper limits well preserved. Bone conduction fluctuates directly with air conduction.

Vertigo attacks, often postural, occurred for one year before hearing was affected.

Vertigo relieved by Portmann's operation but fluctuations in hearing threshold still persist eighteen months after operation.

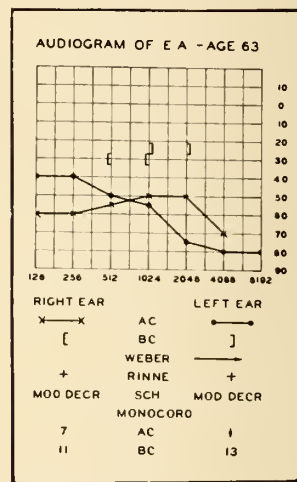


Fig. 6. Advanced deafness in Ménière's disease of eight years' duration. Attacks of vertigo absent for the past two years. Moderate fluctuations in hearing threshold and in tinnitus still occur.

frequently occur in the so-called "hypotonic" individual in whom the blood pressure tends to be low and to fluctuate widely. The basal metabolic rate may also be low and headaches, gastrointestinal disturbances and signs of vasomotor instability occur. This occurs frequently as early as the third decade. The attacks may occur only during a certain posture, such as lying on one or the other side, and may be present for a few days, then disappear.

In this particular group it is sometimes possible to localize the lesion with some certainty to the central nervous system because of the characteristics of the nystagmus, and in these the most likely explanation appears to be on a vasomotor basis.

The symptoms may disappear entirely or they may recur at intervals. A few cases of this type have been observed in which after as long as one year of vertigo attacks auditory disturbances appeared and the diagnosis of Ménière's disease became evident (Fig. 5).

It has been possible in some cases of Ménière's disease to recognize three stages: The first stage when only vertigo was present, the second stage when the complete syndrome was present, and

medical treatment has been on the basis of attempting to control the fluid balance. The discovery of hydrops of the labyrinth has provided a rational basis for this type of therapy. It has been possible to obtain good results in most cases by a combination of limitation of the salt intake, careful control and distribution of the intake of food and fluids, the administration of ammonium chloride as recommended by Furstenberg, or of potassium chloride (3 to 4 teaspoonfuls of a 25 per cent solution per day), along with adequate rest and mild sedation, if necessary.

Histamine therapy has apparently given temporary relief in some but has not met with general lasting success.

Inflation of Eustachian tubes has been quite unsuccessful in the true Ménière's cases in the author's experience.

Surgical treatment is justifiable in cases resisting medical therapy. Two types of surgical procedure have been used: some form of an operation on the labyrinth and an operation to cut the vestibular part of the eighth nerve.

Injection of the labyrinth with alcohol destroys function entirely and is, therefore, undesirable in patients with useful hearing.

Portmann's operation on the saccus endolymphaticus preserves the hearing but has not always given permanent relief to the vertigo.

More recently operation on one or more semicircular canals has been used with the desired result of stopping vertigo while preserving the hearing.

Section of vestibular division of the eighth nerve is also a sound and successful procedure in severe cases. It has the disadvantage of being a more formidable procedure with greater surgical risk. The recovery period is somewhat longer than with operation on the labyrinth.

Summary

The information obtained in recent years seems to have established the entity of labyrinthine dropsy (dilatation of the endolymphatic spaces) as the anatomico-pathological basis for the well known syndrome of attacks of vertigo associated with fluctuating auditory disturbances. While considerable confusion has existed as to the proper use of the terms Ménière's syndrome or disease, it now seems clear that if the term Ménière's disease is to be retained it should be applied only to the disease of the inner ear herein discussed.

THE CONTROLLED ADMINISTRATION OF FLUID TO SURGICAL PATIENTS

Including Description of Gravimetric Methods of Determining Status of Hydration and Blood Loss During Operation

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IT MIGHT appear that any instruction in the matter of administration of fluid to surgical patients is wholly superfluous. Until the studies of Collier and his associates from the University of Michigan focused the attention of the surgical profession upon common flagrant abuses in the administration of fluid and electrolytes to patients, it was a general feeling amongst surgeons that no particular problem hinged about this item. Pediatricists, who deal with infants, have been alive to the importance of the problem for some time. The studies of Gamble, McQuarrie and Hartman and their associates upon fluid and mineral requirements are well known. The work of Collier and his associates aroused surgeons from their apathy with reference to the importance of fluid administration and most of us are now alert to its significance during convalescence after operation.

There are essentially four problems which bear upon the issue of the fluid requirements of patients undergoing operation: (1) water requirement; (2) electrolyte needs; (3) blood loss factor; and (4) caloric and nitrogen requirements of the patient.

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Water Requirements

In the administration of water to a patient after operation, the surgeon may fall into errors of giving either too much or too little. Both mistakes may be followed by grave consequences. Patients with severe dehydration may exhibit shock and may die because of lack of enough available water to supply tissue cells with the requisite amount of fluid. The administration of too much fluid is particularly hazardous in the older age group patient with impaired cardiac reserve. Increases in blood volume, owing to too rapid as well as the administration of too much fluid, may provoke cardiac failure and pulmonary edema. Surgeons, unwittingly, when they were striving to lengthen life have undoubtedly shortened many lives in being delinquent on this score. Most of our postoperative therapeutic directives have been set up with the young person in mind, whose latitude of tolerance for abuse is great. The patient of three score years and more with poor cardiac reserve has a very narrow margin of toleration. The surgeon must learn not to trespass beyond those narrow marginal limits.

When the patient hydrates himself by drinking water, satisfaction of the sense of thirst is, in the main, a fair criterion of the status of hydration. When, however, with an inlying duodenal tube in place, hydration is accomplished by

parenteral methods, the most readily available guide to the status of hydration is the urine output and the specific gravity of the urine. In the Surgical Clinic at the University Hospitals,

for hemoglobin, hematocrit and plasma proteins will solve the issue in such an instance—especially if pre-operative values are available as a basis for comparison. In our clinic, we have



Fig. 1. Use of the weighing scale in determining the status of hydration of postoperative patients. The patient is weighed daily before operation, immediately after operation and again each morning before the intravenous administration of fluids is begun. (This practice should appear attractive to the cardiologist in following the status of hydration in decompensated patients—the block on the scale should support a chair, instead of a litter for such orthopedic patients.) This scale will weigh to an accuracy of 100 grams. (Surg., Gynec. and Obstet.,¹⁴ 72:257, Feb. 15 (2A), 1941, and Intestinal Obstructions,¹⁵ 1942, p. 243.)

a daily urinary output of 800 to 1,000 c.c. with a specific gravity within the normal range of 1.012 to 1.020 is looked upon as providing ample assurance that the fluid requirements of the patient have been met. The more trying problem concerns the patient who, it is believed, has received enough fluid to maintain a satisfactory fluid balance, but who exhibits an oliguria, excreting only a small amount of urine each day, during the first few days after operation. Almost all surgeons are familiar with this occurrence; moreover, all surgeons are very apprehensive over the item of oliguria and anuria. When a patient excretes, after operation, 350, 200 and finally less than 100 c.c. of urine on successive days, despite an adequate intake of fluid, the surgeon has adequate grounds for real anxiety. Most surgeons solve this problem by continuing to give more and more fluid, believing that the patient is dehydrated and reasoning that the lost fluid is being shed through the skin. There are those who insist that, determination of the values

solved this problem by weighing routinely all patients following major operations^{14,15} (Fig. 1). If the preoperative weight has been exceeded and enough fluid has been given so that a satisfactory urine output reasonably could be expected and oliguria continues, there is no need to give more fluid. The continued administration of fluid to such a patient will cause cardiac failure, pulmonary edema and death. Prior to instituting weighing patients as a means of following intelligently the status of hydration, I confess to having brought about cardiac failure and fatal drowning of several old, poor risk patients with low cardiac reserve, when the patients were oliguric during the early postoperative period. I have the impression that other surgeons have fallen into the same error, especially those who have lent an attentive ear to meaningless claptrap catch phrases as "push fluids" and other equally euphonious but empty expressions. Weight increases of 4 to 5 per cent over the patient's pre-operative weight speak significantly for over-

hydration of the patient. I have the definite feeling, despite the obviously gross character of this differential criterion, that the weighing scale is the most *precise* manner of ascertaining the status of hydration in postoperative patients—more accurate than determinations of hemoglobin, hematocrit and plasma proteins. As a matter of fact, I have seen such oliguric patients after operation in which ascertainment of the status of hydration by the criteria just enumerated suggested that the patient in question was dehydrated and needed more fluid. Proponents of physical measures for determination of whether hemodilution or hemoconcentration is present in a given oliguric postoperative patient would disregard the weights of the patient if that data did not tally with theirs. I have learned to have far more reliance on the trustworthiness of the pre- and postoperative weights as the best guide to the status of hydration. When a patient continues oliguric for several days and his weight has exceeded the pre-operative weight by 3 to 4 per cent, the administration of more fluid will usually provoke pulmonary edema. Next to regurgitation from the stomach into the lungs, the most common cause of postoperative pneumonia is probably administration of too much fluid.

Dehydration may accompany prolonged vomiting, the use of the indwelling duodenal tube without adequate replacement of fluid aspirated, diarrhea and abnormal sweating, and profound diuresis provoked by the too rapid administration of hypertonic glucose solution. Dehydration is a condition more amenable to correction, in the main, than is overhydration carried to the point of inviting pulmonary edema in patients with a poor margin of cardiac reserve. Coller and Maddock⁴ state that, in patients presenting *manifest* evidences of dehydration, 6 per cent of the body weight has been lost and that amount of fluid should be given.

Electrolytes

What kind of fluid should be given? I believe it is fair to suggest that surgeons have been somewhat indifferent on this score. It has not been uncommon practice amongst some surgeons to give all paraoral fluids in physiological saline solution. The error of such practice is not difficult to detect. Normal saline solution, unlike water and hypertonic solutions, does not afford the kidney a vigorous impetus for the ex-

cretion of urine; in consequence, water and salt are eliminated slowly and retention of sodium chloride and water occurs. For every gram of sodium chloride retained and not excreted, 100 c.c. of water is retained. The daily administration of 2 to 3 liters of saline solution is, therefore, bound to terminate in salt retention and edema. Obviously, not more salt should be given than is requisite to meet the body needs.

Whereas surgeons must rely on a number of guides to determine the amount of water a patient needs (thirst, urine excretion, determination of status of hemoconcentration and gross body weight), there are direct means of knowing whether a patient has had enough salt. Sodium chloride is a threshold substance and when given in more than adequate quantities, it is eliminated in the urine;⁹ daily excretion of 2 to 3 grams of sodium chloride in the urine suggests that enough salt has been given. The most accurate index of sodium chloride balance is determination of the plasma chloride level. Normal values for sodium chloride in the plasma lie between 560 and 600 milligrams per cent. Coller and his associates have suggested, in conditions attended by hypochloremia, such as pyloric obstruction associated with vomiting, that, for each 100 mg. per cent the plasma chloride needs to be raised to reach the normal value of 560 mg. per cent, the patient be given 0.5 gram of sodium chloride per kilo of body weight. In a patient weighing 70 kilos and in whom the plasma chloride value is found to be 460 mg. per cent, the patient will need $560 - 460 = 1 \times .5 \times 70 = 35$ grams sodium chloride. These predicted calculated values coincide quite accurately with clinical trials. It is not to be forgotten, however, that man has no apparent appreciation of a bodily need for sodium chloride. Whenever imbalance of the sodium electrolyte equilibrium may be present, it is up to the surgeon to detect this deficiency.

For the ordinary postoperative patient, 5 to 9 grams of salt daily suffices. Salt lost through the agency of aspiration through an indwelling duodenal tube averages about 5 grams per liter; salt lost by perspiration about 3 grams per liter; the salt loss in insensible perspiration is negligible. Anesthetized patients notably lose considerable fluid by perspiration because of the vasodilating effect of anesthesia on the skin capillaries. In spinal anesthesia, this effect is noted only below the level of anesthesia.

Necessary fluid, beyond the requirements of sodium chloride given in physiologic saline solution, should be given as glucose solutions. In the main, there is little need to employ repair solutions other than saline solution in the management of disturbances of the electrolyte pattern of the plasma and interstitial fluid compartment. In contractions of fluid in the extracellular compartment (plasma and interstitial fluid, it is the sodium (cation) and chloride (anion) relationship which may be disturbed seriously. Neither the sodium nor the chloride ion have an available source for replenishment from within the organism; consequently they must be supplied. No matter which ion has been lost preponderantly—whether the chloride ion (alkalosis) or the sodium ion (acidosis), on the administration of saline solution the normal sensitive kidney will regulate the retention and excretion of electrolytes in such a manner that a normal extracellular fluid volume will be restored with correction of temporary defects in the composition of the electrolyte pattern. In severe dehydration, renal injury is not uncommonly present. In this circumstance, the liberal administration of a dilute glucose solution will assist in adjusting the diminished plasma volume, providing at the same time surplus water to aid the kidney in eliminating the ion is present in excess.

On the surgical service, we have followed these suggestions of Gamble, employing solutions of salt and glucose to repair contractions in extracellular fluid and electrolyte disturbances, with complete satisfaction. We have had next to no experience with the use of the more elaborate Ringer-Tyrode or Hartman repair solutions. Only in acidosis, a third agent, sodium bicarbonate solution (5 per cent) has been used to help restore contraction of the plasma bicarbonate.

The oral intake of a patient with an inlying duodenal tube is aspirated almost in entirety. All patients having gastric suction must be hydrated by para-oral means, either by the subcutaneous or the intravenous route. In the main, proctoclysis is a little too uncertain to be relied upon. In giving intravenous infusions, unless to patients exhibiting the contracted blood volume of dehydration or shock—all such infusions should be given slowly, lest the work of the heart be increased appreciably.

Blood Loss Factor

A brisk bleeder, loose in a deep wound for a minute, can pyramid blood loss astonishingly. During those few anxious moments, more blood may be shed than through the whole ordeal of a lengthy and trying operation, in which the surgeon's aim is to do the job well and with minimal spillage of blood. The surgeon who has a penchant for operating in a bloody field and who cuts vessels before they are secured by hemostats instead of after, finds that his patient cannot tolerate long operations. Unwittingly, therefore, he perpetuates the tradition of pre-anesthetic days that operations must be done with despatch. When surgeons quit repeating such fictional myths and discover the cause of their own deception, surgery will have taken a definite step forward.

For a period of many months, it has been routine practice with the writer to employ dry sponges during operation. This permits the surgeon to determine the blood loss to an accuracy of a few grams. The complete increment of gain in weight is calculated as blood loss, even though some of the gain in weight of sponges used in peritoneal or thoracic operations, is owing to absorption of fluid with a protein content of 2 to 4 grams per cent. It might appear that the use of dry sponges imposes a serious handicap on the surgeon. Experience suggests definitely that it does not. However, large packs which are employed to cover the intestine are kept moist to keep fibrin formation on the bowel at a minimum. Such sponges are counted but not weighed. The usual blood loss in a gastric resection runs between 300 and 500 c.c. A single brisk bleeder augments the blood loss decidedly.

The precision of gravimetric methods, such as weighing sponges, as well as the patient himself, affords the surgeon helpful orientation concerning what he must do to accord his patient maximal protection. At any time during the operation, the surgeon can inform himself of what the blood loss has been up to that juncture. Because of the lack of reaction attending the administration of plasma, the writer prefers it to blood. In each operation of any magnitude, plasma is allowed to run into one of the patient's leg veins in such a manner that when the operation is over, the patient has received 100 to 200 c.c. more plasma than the total increment of gain in weight of the sponges. There are hazards of

over-replenishing blood loss as well as in failure to replace it adequately. Aged, poor risk patients with impaired cardiac reserve should not be asked to withstand increases of blood volume as well

starvation are well withstood. Whereas maintenance of caloric balance is important for the postoperative patient, it is of even greater importance to the patient who awaits operation, es-

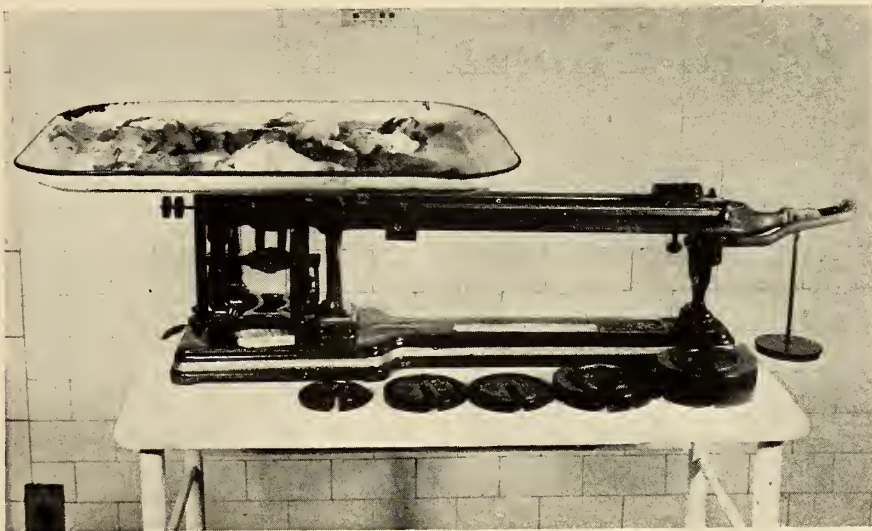


Fig. 2. Use of the weighing scale in determining blood loss during operation. At any juncture, the surgeon may know how much blood has been lost. The surgeon must, of course, employ dry sponges. This scale will weigh to an accuracy of 1 gram.

as operation. At the same time, the actual blood loss must be made up so that the patient does not have to tolerate both operation and blood loss. The planned procedure with a watchful eye to every detail is the best assurance against the perils of operation.

Large blood losses are to be replaced preferably by blood. When multiple transfusions become necessary, it is a good plan to follow the suggestions of DeGowin, providing an alkaline urine by the intravenous administration of sodium bicarbonate solution (250 c.c. of 5 per cent solution). It is DeGowin's contention that albuminous casts are less likely to form in the renal tubules, attending hemolytic reactions, if the urine is alkaline.

Maintenance of Caloric and Nitrogen Equilibrium

Surgeons have been very remiss in meeting the caloric and nitrogen requirements of patients during recovery from operation. Enough glucose is given ordinarily to offset the ketosis of starvation—but not enough to meet the energy requirements of the patient. Surgeons have been abetted in this dereliction by physiologists who have emphasized repeatedly that temporary periods of

pecially the patient who has lost weight because of inability to take food. The patient with long continued complete pyloric obstruction exhibits the extremity of difficulty confronting the surgeon in preparing such a patient for operation by intravenous therapy. During the ketosis of starvation, the glycogen and protein deposits in the liver are exhausted and fatty infiltration occurs. Patients with fatty livers are notably poor risks for operation. Ravdin and his associates have demonstrated that a combination of a high protein and carbohydrate diet given by mouth is particularly efficacious in removing fat from the liver and replenishing the normal glycogen and protein deposit stores. Whereas similar studies on intravenous feedings are not available, experience gained in this clinic by operating on patients with long standing pyloric obstruction, prepared for operation by trying to meet caloric and nitrogen requirements, suggests that patients can be prepared by intravenous therapy alone, if need be, to withstand formidable operations lasting four to six hours.

Elman and Brunschwig and their associates appear to have demonstrated that nitrogen equilibrium may be maintained by the intravenous administration of commercially available amino

acids alone (amigen) combined with the use of liberal quantities of carbohydrate as a protein sparer. From Brunschwig's tables it is easily apparent, however, that a positive nitrogen balance (nitrogen retention) was more easily sustained if protein was given by mouth. Our own attempts to date at achieving nitrogen balance with intravenous injection of amino acids (preparation of F. Stearns or Mead Johnson) as the sole source of nitrogen intake have not been in accord with those findings, *viz.*, we failed to observe nitrogen retention and found a high excretion of nitrogen in the urine and note that our patients were in negative nitrogen balance despite liberal use of carbohydrate as a protein sparer. We had observed previously,¹³ however, that nitrogen balance may be achieved by the intravenous injection of plasma protein. Five hundred to 600 c.c. of plasma a day (40 grams protein) suffice to establish nitrogen equilibrium though we failed with 75 grams of amino acid protein. It is probably debatable, however, whether it would be wise to give 40 grams of plasma protein intravenously day after day, lest the infusion of this iso-osmotic colloidal solution increase the blood volume and the venous pressure and invite heart failure.

Our practice has been to give 1,500 c.c. of a 20 per cent glucose solution intravenously over a ten- to fifteen-hour period. With this slow rate of injection, daily quantitative studies of the urine show practically complete utilization of the sugar injected. The disadvantage hedges about thrombosis of the veins with such concentrated glucose solutions. Yet, recognizing the need of meeting at least the basal caloric requirements of the patient, and not wishing to give too much fluid to poor risk patients, we have continued to follow this practice and have observed no untoward effects from its use other than occasional thrombosis of the veins. About 75 grams of amino acid protein is injected intravenously daily and 100 to 200 c.c. of plasma. An approximation of caloric and nitrogen balance can be achieved by these means.

To be sure, as Raydin and his associates have emphasized, if the patient can take food by mouth, the preparation of a patient for operation by oral feedings is considerably more effective than by intravenous feedings. In poor risk patients who have lost considerable weight, not exhibiting complete pyloric obstruction, we employ

the constant intragastric drip (day and night), giving about 90 to 100 c.c. an hour of a high protein and carbohydrate and low fat mixture of food (Varco gastric diet No. 2).

This method of preparation of the patient excels intravenous feedings in simplicity and effectiveness considerably. Yet, there are patients in whom the method is not applicable. Furthermore, we have had now the experience of preparing several patients with complete pyloric obstruction exhibiting large weight losses for extensive gastric resections by the intravenous therapy alone. The mortality of resection for ulcer in this clinic (exclusive of the acute perforation and the bleeding ulcer) has been approximately 1 to 3 per cent during the past few years. The mortality of resection for malignancy during the same interval has hovered about 8, 10 and 12 per cent. It was reasoned that this difference in risk was explained satisfactorily by the age disparities of the ulcer and carcinoma groups. During the past year, however, with increased emphasis on trying to prepare the poor risk carcinoma patient adequately for operation by feeding, we have erased largely the difference in mortality between the two groups. In thirty-nine consecutive resections for malignancy of the stomach during the past twelve months,* only one patient died in hospital—a total gastrectomy in which unfortunately a small gauze sponge was left in the peritoneal cavity, the patient dying of intra-peritoneal abscesses more than eight weeks subsequently. In this group of patients with gastric carcinoma were several whom in former years we would have lost because of failure to meet adequately caloric and nitrogen requirements.

Summary and Conclusions

By proper attention to the controlled administration of fluid to surgical patients, the indications for many operations may be extended to the poor risk patient without increasing the risk materially. The items with which the surgeon must concern himself relate to the following: (1) water requirements of the patient; (2) electrolyte needs; (3) the blood-loss factor in operation, and (4) the caloric and nitrogen requirements of the patient.

It is suggested that the surgeon interest himself more in precise means of determining

*September 1, 1941, to September 1, 1942—Total hospital mortality 2.56%.

whether these needs of the patient have been satisfied. The experience of this clinic suggests that weighing the patient is the most precise method of determining the status of hydration of the postoperative patient. Similarly, employment of dry sponges during operation permits the surgeon to employ the weighing scale to gauge accurately the extent of the blood loss.

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CLINICAL ASPECTS OF BRANCHIAL FISTULÆ

With a Case Report of Bilateral Complete Branchial Fistulæ

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BRANCHIAL fistulæ, sometimes called lateral cervical fistulæ, lateral vestigial ectodermal or entodermal fistulæ, branchiogenic fistulæ or persistent branchial clefts have been known as a surgical entity for over one hundred and fifty years. These are congenital fistulæ and present a considerable variety of clinical findings. Even though there has been a great deal of investigation and observation reported in the literature, there is very little agreement as to the exact origin of these fistulæ.

The first reports of congenital cervical fistulæ were made by Hunczowski¹⁹ in 1789 and by Dzondi¹⁹ in 1829. The existence of branchial clefts in mammalian and human embryos were first accurately described by von Rathge¹¹ in 1825.

In 1832 Von Aschersön⁷ published his "De Fistulis Colli Congenita" in which he reported eleven cases of congenital neck fistula. He definitely recognized the inner orifice as pharyngeal and not tracheal and distinguished between medial and lateral fistulæ. It was the first time that the lateral cervical fistulæ were associated with the incomplete closure of the branchial clefts.

Von Heusinger¹¹ in 1864 believed that the in-

ternal orifice of all fistulæ was situated on the lateral wall of the pharynx at the base of the tongue. He was of the opinion that the location of the external fistulous opening determined the cleft at fault and that the fourth cleft was responsible when the orifice was at the sterno-clavicular junction.

In 1887 Rabl¹⁶ described the formation of the branchial clefts and the cervical sinus showing how they were obliterated by the apposition of ectoderm with ectoderm which resulted in the disintegration of cells. He demonstrated that the second cleft was much more apt to persist embryonically because of its greater depth and came to the conclusion that the second cleft and its attachments are almost invariably at fault in the formation of branchial anomalies.

Von Kostanecki and von Mielecki¹¹ when studying this subject in 1890 found the most frequent and constant internal opening of fistulæ to be located in the supratonsillar fossa and concluded this corresponded with the second cleft. They believed that the complete fistula originated from a rupture in the cervical sinus of the second pharyngeal pouch.

Wenglowski,²⁰ a Russian embryologist, in 1912, after a five-year study on seventy-eight human embryos and 246 cadavers, concluded that the

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lateral cervical fistula originated from the thymopharyngeal duct which develops from the third pharyngeal pouch. He believed that the branchial apparatus could not leave remnants in the neck below the hyoid bone.

Frazer⁹ in 1924 presented the possibility that branchial rests and fistulæ developed from the "ectodermal external pharyngeal ducts" or the "entodermal internal pharyngeal ducts" which are embryologic structures of the branchial apparatus. He postulated that the placodal bodies or epithelial bodies in the branchial or visceral grooves might be the source of vestigial cervical anomalies.

The branchial apparatus begins to develop in the human embryo in the third week. By the end of the second month the structure has disappeared. On each side of the neck region there appear five bars or branchial arches separated by depressions or branchial grooves. These are covered with ectoderm. In the foregut there develop corresponding bars or pharyngeal arches and depressions or pharyngeal pouches, which are covered with entoderm. Mesoderm separates the ectoderm and entoderm in the branchial apparatus except where the branchial pouch and pharyngeal pouch approximate each other and there the ectoderm and entoderm are together forming the separating membrane. Each arch contains a cartilaginous core, a primitive aortic arch and a nerve. These persistent structures serve to identify the site of origin or any given fistula when their relationship is determined.

The first and second arches grow more rapidly than the others and overlap them. A recess is formed called the cervical sinus or the pre-cervical sinus¹⁰ of His. At first the sinus opens wide laterally, but as the second arch grows downward the sinus opening narrows to a small duct and then becomes obliterated. The second, third and fourth branchial grooves communicate with the cervical sinus.

The theories of the origin of branchial fistula fall into two groups, namely, the branchiogenic theory and the thymopharyngeal duct theory. They are as follows:

A. Branchiogenic theory:

1. The rupture of the separating membrane producing a persistent branchial cleft.
2. An anomalous development of malformed branchial arches and grooves.
3. The incomplete retrogression of the branchial apparatus.
4. The persistence of the cervical sinus.

5. Remnants of the ectodermal external pharyngeal ducts or of the entodermal internal pharyngeal duct.
 6. Branchial rests from the placodal bodies or epithelial bodies in the branchial or visceral grooves.
- B. Thymopharyngeal duct theory—(Wengłowski²⁰).

Normally all the branchial grooves are obliterated except the first which, together with the separating membrane and the first pharyngeal pouch, develop into the external auditory canal, tympanic membrane, and Eustachian tube, thus nearly forming a normal fistula. The second pharyngeal pouch contains the anlage of the palatine tonsil. The internal opening of a cervical fistula which has developed from the second branchial groove should be in the tonsillar fossa. This is the site of the internal opening of the complete fistulæ in nearly all the reported clinical cases. The internal opening of the third pharyngeal pouch would be in the pyriform fossa and the internal opening of the fourth would be in the lower end of the pharynx. Internal openings of cervical fistulæ in these locations are very uncommon and there is some doubt if they ever occur.

A fistula bears definite and distinct relationship to the main vascular and nervous structures of the neck if their development is normal. These relations are facts and not theories and are absolutely fixed. A fistula having its origin from the second branchial groove passes between the external and internal carotid arteries and in front of the vagus nerve. The course of a fistula from the third groove goes behind the common or internal carotid arteries and in front of the vagus nerve. A fistula originating from the fourth branchial groove would have to go around the arch of the aorta on the left side, and around the subclavian artery on the right side. Frazer⁹ states that the only ones that have been recognized with certainty are those from the second.

This discussion of the clinical features of branchial fistulæ is based upon the review of 107 case reports appearing in the surgical literature, and the following case of bilateral complete fistulæ.

Case Report

A white male, sixteen years of age presented himself at the surgical dispensary of Wells Memorial House complaining of discharge from two openings on the front of the neck. The two small openings had been present since babyhood. The mother stated that drops

of milk would appear on the neck from each opening when he nursed. There had been no other particles of food that had come from the openings. There never had been any soreness about the openings or in the neck. The mother and the boy had never noticed any swelling in the neck.

The discharge was usually a clear thin fluid which kept the skin of the neck moist. At times the fluid was yellow and sometimes had a foul odor. Eating did not produce any change in the amount of fluid which drained.

He had measles when one year of age, chicken pox when three and German measles when seven years old. At the age of ten years he had a tonsillectomy. Since then he has had no sore throats. Previously he had not had any swelling or masses in the neck.

The mother, the father, and an only brother twelve years old, had no abnormalities in the neck. The mother stated that she did not know of any relative on either side of the family that had any neck abnormality.

Examination revealed a well developed, well nourished boy, 138 pounds in weight and five feet seven inches in height.

On the anterior surface of the neck there were two pin-point openings, each symmetrically placed at the anterior border of the sternocleidomastoid muscle one inch above the sternoclavicular articulation. From each opening a thin clear fluid drained. A firm cord-like structure running parallel to the anterior margin of the sternocleidomastoid muscle could be palpated in each anterior triangle of the neck from the opening to the angle of the mandible. There were no enlarged cervical lymph glands. When the patient swallowed, each opening moved one-fourth of an inch upwards in the neck.

The mouth and pharynx appeared normal. There were no irregularities visible. The tonsillar fossæ were clear. The physical examination was otherwise negative.

Laboratory examination revealed a normal urine and blood picture. The Wassermann test was negative.

Roentgenograms were taken of the cervical region after the injection of lipiodol into each opening. Dr. Russell Morse, the roentgenologist, concluded that the sinus tracts passed superiorly from the external openings to the level of the base of the tongue on both sides and apparently the tract on the right side was higher than that on the left.

After the injection of the lipiodol the pharynx was inspected and no lipiodol was seen to have passed into the pharynx.

The patient was admitted to St. Barnabas Hospital during the Christmas vacation in 1934. On the operating table each opening was injected with methylene blue solution which appeared in the pharynx from each side through a small opening that was located on each posterior tonsillar pillar at the junction of the superior and middle thirds.

The left complete branchial fistula was operated first according to plan and the dissection of the right complete branchial fistula was done later. It was thought that a deep dissection of the neck could be better tolerated if one side at a time were done. If a com-

plication were to occur, such as infection, it would be easier to manage in case of a unilateral dissection.

A purse string suture was placed around the left external orifice and tied. A cuff of skin was excised with the external orifice. A longitudinal oblique incision was made over the fistulous tract from the external opening to below the angle of the mandible. The incision was carried through the skin, platysma and cervical fascia, exposing the fistula. The fistulous tract was dissected from below upward. The tract was located anteriorly and laterally to the carotid sheath. At the level of the hyoid bone the tract angulated toward the pharynx. The fistula passed under the posterior belly of the digastric muscle and between the external and internal carotid arteries. The glossopharyngeal, the vagus and the hypoglossal nerves were not visualized. The dissection of the fistula was carried to the pharyngeal mucous membrane. The inversion of the fistula at the internal orifice was carried out according to the method of von Hacker.¹⁹ The fistula was bisected leaving a half inch segment attached to the pharyngeal mucous membrane. A probe was passed through the internal orifice and fistula. The end of the fistula was attached to the probe and the fistula inverted into the pharynx when the probe was withdrawn. The fistula was ligated flush with the mucous membrane. The neck wound was sutured with interrupted sutures. A penrose drain was placed in the superior angle of the wound.

The right complete branchial fistula was operated during another vacation four months later. The same condition existed as was found on the left side. The same procedure was carried out. In attempting to invert the fistula at the internal orifice it was avulsed at the pharyngeal mucous membrane. The defect in the mucous membrane was repaired by two interrupted sutures.

The patient recovered uneventfully after each procedure and was discharged from the hospital each time on the fourth postoperative day.

Microscopic sections of the fistulæ were examined by Dr. Floyd Grave, the pathologist, who reported that the tract was lined with squamous and columnar epithelium. In some areas the columnar epithelium was ciliated. The epithelium was destroyed in places and replaced by scar tissue. Some sections showed a marked round cell infiltration of the wall of the fistula.

It has been seven years since the operation, and there has been no recurrence. The patient offers no complaints relative to the neck.

Although branchial fistulæ are congenital in origin only a small number are found at birth. They may appear at any time from childhood into adult life. Most of them make their appearance before the age of thirty. The delayed cases may represent internal incomplete fistulæ that break through externally or branchial cysts that break through or have been incised and allowed to drain forming an external draining sinus.

The fistulæ occur with about equal frequency on either side of the neck. There were 45 per cent on the right side and 47 per cent on the left, and 8 per cent were bilateral. In Ladd and Gross¹⁴ series, 37 per cent were on the right side, 58 per cent were on the left and 5 per cent bilateral. Hyndman and Light¹¹ found the right side involved in 52 per cent, the left in 31 per cent and bilateral in 17 per cent.

As to sex, the cases were about equally distributed between males and females. There were 44 per cent in males and 56 per cent in females. Hyndman and Light's¹¹ series closely parallel this, having 47 per cent in males and 53 per cent in females. Lahey and Nelson¹⁵ in their series reported a preponderance of cases in females, namely 70 per cent. These findings tend to refute the statement appearing so generally in the literature that branchial fistulæ are most frequent in females and that they are found on the left side in the majority of cases.

There seems to be hereditary tendency in some cases of branchial fistulæ. This is brought out only in the occasional case in most of the reported cases. It was observed by Virchow¹¹ in 1865 when he reported the condition occurring in a mother and her eight children; in a mother and her son in three instances; in a mother and daughter and two sisters, a brother and a maternal grandmother in one instance. Vaughn⁷ observed a young woman with bilateral fistulæ who had a daughter and a sister with fistula on the left side and a grandmother with one on the right side. Hyndman and Light¹¹ reported fistulæ occurring in a mother and in three of her five children. They concluded that the condition was inherited through the mothers, there having been no instance reported through the father. One of Carp and Stout's⁶ cases, however, was a girl with bilateral fistulæ whose father, brother and female cousin on the father's side had bilateral fistulæ. In 100 collected cases Fischer⁶ noted twenty-one with a hereditary tendency. This I believe is a rather high incidence. Bailey,¹ surgeon at the Royal Northern Hospital of London, who has had a large experience with branchial fistulæ, has had none with a hereditary factor.

Branchial fistulæ are classified as to type as follows: (1) *complete*, where the fistulous tract has an external opening on the surface of the neck and an internal opening in the pharynx;

(2) *external incomplete*, where there is only an external opening on the neck and the fistulous tract ends blindly in the neck structures; and (3) *internal incomplete*, in which there is only an internal opening in the pharynx and the fistula ends blindly in the neck. The complete fistula is the prototype and the others are the variants. The most common form is the external incomplete, and the rarest is the internal incomplete. There were 47 per cent of the external incomplete type, 39 per cent of the complete and 11 per cent of the internal incomplete type. The fistulæ may be unilateral or bilateral. In the series of 108 cases of branchial fistulæ there were nine in which the fistulæ occurred bilaterally. The case reported above was the only one that had a complete fistula occurring on each side of the neck.

The internal incomplete fistula is usually not found unless some complication occurs such as inflammation of the tract or retention of the secretory products of the tract lining which produces a swelling. A tonsillectomy may initiate the inflammatory reaction in the fistulous tract which has its opening in the tonsillar fossa. A swelling occurs in the neck that must be differentiated from an adenitis. Internal incomplete fistulæ which have produced this clinical sequence have been reported by Bailey¹ and Johnson.¹²

The external opening of these fistulæ occurs usually in the anterior triangle of the neck along a line running from the angle of the mandible to the sternoclavicular articulation. In 80 per cent of the cases the opening is in the lower third of the neck. However, the site of the opening may be any place from the level of the hyoid bone down to the sternum. The situation of the external opening is thought to be determined by the time in the embryonic life when the fistula had its origin. If it starts early in the development of the branchial apparatus the external opening will be higher in the neck than if its origin is later. It is uniformly agreed that the position of the external opening does not indicate what branchial or visceral groove was involved in the formation of the fistula. Variation from the usual location of the external opening in complete fistulæ has been noted. Semken¹⁹ reported a case where the external opening occurred on the side of the neck posterior to the sternocleidomastoid muscle. Atypical openings may represent internal incomplete fistula that

break through to the outside of the neck because of inflammatory changes.

Usually the fistulous openings have a single orifice. An interesting case was reported by Virchow¹¹ in which the fistula had multiple small openings on the right at the junction of the sternocleidomastoid muscle and the clavicle.

The external opening varies in size from a small pin-point orifice to 2 or 3 millimeters in diameters. The opening may be surrounded by pigmented skin. Cases have been reported which present a dimpling or a tab of skin containing cartilage at the external orifice. The external opening is usually of a smaller calibre than the fistulous tract above it. Inflammatory edema may occlude the opening and secretory and inflammatory products are thereby retained in the tract.

The drainage that occurs on the neck is the symptom for which these patients practically always seek relief. The drainage discharge may be a clear tenacious mucous or a turbid white or yellow fluid. The turbid fluid may be due to the desquamated epithelial elements or to the presence of pus in the infected cases. The drainage may be a continuous small amount or in some cases, an intermittent and more abundant amount. In complete fistula, fluids or solids may pass from the pharynx to the outside of the neck depending upon the calibre of the tract. Lesser⁷ observed a man with a complete fistula who could pass a curved probe from inside of the pharynx to the outer opening just above the sternoclavicular articulation, and withdraw it.

In those fistulæ which are adherent to the vagus nerve or which contain some of the vagus nerve fibers, the patients may present symptoms due to vagus irritation. A chronic nonproductive cough may be produced. Such a cough was relieved when Carp⁵ excised a fistula that was adherent to the vagus nerve. Hyndman and Light¹¹ reported a case of branchial fistula in which coughing, palpitation of the heart and vomiting were produced when the tract was probed. That the vagus nerve may be involved and vagal symptoms produced should always be considered when cervical fistulæ are probed or injected.

In the majority of branchial fistula cases there are inflammatory processes present. The external and internal orifices favor the introduction of infection, and the occurrence of inflammation in the tract or in the perifistulous tissues will bring

these patients to seek relief. The discharging orifices become reddened and tender. A tender cord-like structure may be produced in the neck or when a small orifice becomes obstructed, a mass may occur. Such a mass may vary in size because of an intermittent draining and emptying. An interesting case of an internal incomplete fistula was reported by Eddowes¹ in a nurse thirty years old in whom the fistula became periodically filled with purulent material. The toxic material undermined her health, causing a marked loss of weight. The condition was unrecognized for some time. When the fistula was removed she regained her health.

A fistula may be of various lengths. It may extend only a short distance, a few millimeters, from either an external or internal opening, or it may be a complete fistula. By the injection of colored solutions or solutions of recognizable taste it can be determined if an external orifice has a communicating tract with the pharynx. A colored solution may locate the position of an internal orifice which is usually hard to locate and many times is not recognizable. The extent and course of a tract can sometimes be visualized by injecting radiopaque substances, such as iodized oils or solutions or barium mixtures, and by taking roentgenograms of the neck region. The calibre and degree of sacculation of some tracts can be demonstrated. If the calibre of the sinus is small or narrowed in some segments it may be impossible to visualize the entire extent of the tract. Too much reliance should not be placed on a roentgenogram showing a partial fistula for the complete tract may not have been filled. Dowd⁸ visualized a complete branchial fistula by passing an opaque ureteral catheter and making roentgenograms. Hyndman and Light¹¹ utilized this procedure in one of their cases.

In the case of a complete fistula there will be, on deglutition, some recognizable changes in the external orifice. The fistulous cord will create traction on the orifice and adjacent skin causing it to move upwards or to retract, producing a dimpling. In most cases an indurated cord which runs upward from the external opening can be palpated in the neck.

Branchial fistulæ are usually lined with a well organized epithelium. In some a stratified squamous epithelium is found and in others the lining is made up of columnar epithelial cells which may be ciliated. Both types of epithelium

have been found in a single fistula. I cannot agree with those authors who state that the lining of fistulæ is always made up of columnar epithelium in contrast with branchial cysts which are always lined with squamous epithelium. Where there has been an inflammatory process in the tract the epithelium may be destroyed completely or in part and replaced by scar tissue.

The wall of the fistula contains areas of lymphoid tissue which may encircle the tract or be deposited in separate areas along the course of the fistula. Connective tissue and varying amounts of smooth and striated muscle fibres will also be found in the wall. In isolated cases there are nerve fibres, cartilaginous remnants and secretory glands in the wall of the fistula.

The fistulous wall usually is not uniform in thickness. It may be very thin in places and at other places thick. The lining membrane often has deep crypts or infoldings which produce a marked irregularity in the calibre. In some cases these crypts may be so deep that they appear as diverticula and extend away from the fistula. Carp and Stout⁶ observed a case where microscopic sections showed numerous accessory tracts lined with epithelium similar to the main tract and lying adjacent to it.

Branchial fistulæ must be differentiated from tuberculous adenitis with a sinus and from atypical thyroglossal duct fistula. A tuberculous sinus in the neck will usually be associated with several enlarged cervical lymph glands. The discharge from a branchial fistula will be mucoid or mucopurulent while in a tuberculous sinus it will be serous or seropurulent. In the case of a fistula, examination of the discharge may show the epithelial elements while in a tuberculosis sinus acid-fast bacilli may be found. By examining the external orifice with a hand lens the mucous membrane lining can sometimes be recognized in a branchial fistula while in the tuberculosis sinus there is no epithelial lining.

Thyroglossal duct fistula has occurred in one of the anterior triangles of the neck. The external orifice has been situated laterally from the midline which is not its usual location. The course of the fistula may be determined by probing or by taking roentgenograms after the tract has been filled with a radiopaque substance. The thyroglossal duct fistula will be associated with the mid portion of the hyoid bone while a branchial fistula lies laterally to the bone.

The treatment of branchial fistulæ is the total surgical extirpation of the tract. If this is not accomplished there is apt to be recurrence. The procedure may be easy or extremely difficult. A dissection of a short external incomplete fistula usually offers no difficulty. It must be realized that what may clinically appear to be a short fistula may be of greater extent when the dissection is attempted, and one must be prepared to carry out a complete dissection to the pharynx.

The operation may be performed through an oblique incision running parallel to the anterior margin of the sternocleidomastoid muscle. The incision is made directly over the tract and extends from the external orifice to the level of the hyoid bone if it becomes necessary to expose a complete fistula. Bailey¹ advocates the "stair step" incisions. An oblique transverse incision is made at the level of the external opening; a second one is made at the level of the hyoid bone. The tract is dissected upward underneath the skin to the second incision, the contention being that a better cosmetic result is obtained with these incisions.

To facilitate the dissection of the fistula, several procedures have been devised. The fistulous tract has been fixed by a probe or by a ureteral catheter. The fistula has been filled and distended by fluid, oil or paraffin. With the use of methylene blue the course of the tract can be ascertained and, if an irregularity is cut across, it will be easily visualized. Love⁴ encircled the external orifice with a purse string suture a few days preceding the operation to allow the tract to become distended with secretion.

In some cases to get adequate exposure of the upper end of the fistula as it approaches the pharynx, the fascia, covering the posterior belly of the digastric muscle, may be incised in the long axis to free the muscle belly from its inner sheath. The muscle can be retracted upward producing a wider space to carry on the deep dissection and making it easier to identify the vascular and nerve structures.

There is a difference of opinion as to what is necessary in removing the inner orifice of a complete fistula. Ladd and Gross¹⁴ consider it necessary to carry the dissection of the fistula only up to the mucous membrane of the pharynx and removing the fistula two or three millimeters from the pharyngeal mucous membrane and tying

it. Others remove the tract flush with the pharyngeal mucous membrane and do not consider it necessary to suture the area but allow the tissues to fall together. The inversion of the fistula, according to the method of von Hacker,¹⁹ was described in the case report. In cases where the perifistulous tissues are indurated and do not allow the inversion of the tract, a cuff of pharyngeal mucous membrane may be excised along with the internal orifice and the defect sutured. In fistulæ Koenig⁷ could not invert, he tunneled under the mucous membrane and placed a short segment of the tract anteriorly from the internal orifice. The opening of the short segment was fixed at the level of the pharyngeal mucous membrane leaving two fistulous opening connected with a short tract in the pharynx.

The contents of a fistula must be considered contaminated and spilling should be avoided. The dissection should be so carried out that the fistulous cord contains all of the tract and the dissection must be wide enough so that accessory ducts or irregularities are not cut across. The usual course of a complete fistula lies under the platysma and outer layer of the middle cervical fascia and upon the sternohyoid and sternothyroid muscles. The fistula courses laterally to the internal jugular vein and common carotid artery. At the level of the hyoid bone the fistula changes the direction of its course and angulates to approach the pharynx. At this level it passes beneath the posterior belly of the digastric muscle and between the external and internal carotid arteries which lie anteriorly and posteriorly respectively. The fistula passes over the hypoglossal (XII) and glossopharyngeal (IX) nerves and under the styloglossus muscle to end in the tonsillar recess of the pharynx.

It is generally agreed that the treatment of branchial fistula by the injection of escharotics is not dependable. It is practically impossible to inject a fistula so that the entire lining is in contact with the solution because of the infoldings of the epithelial lining and the occurrence

of accessory tracts. A narrowed segment may obstruct the filling of the tract. The thickness of the epithelial lining and of the wall of the fistula varies. Solutions necessary to destroy the thick portions will perforate the thin portions of the wall and cause inflammatory changes in the perifistulous tissues. Lahey and Nelson¹⁵ state that the danger of perforation of the pharynx by necrosis and the marked inflammatory reaction which may result are objections to this type of treatment.

Summary

1. A case of bilateral complete branchial fistulæ is reported.
2. A brief historical review of branchial fistulæ is given.
3. The embryology of the branchial region is reviewed.

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EVALUATION OF RECENT DATA ON BOILED LIVER EXTRACT METHOD OF TREATING ACNE VULGARIS

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SEVERAL recent articles have appeared in the current literature which have used the author's method of treating acne vulgaris with boiled liver extract. Boreen¹ concluded that the "treatment with boiled liver extract has been disappointing." This investigator had a series of cases which numbered fifty patients. Of these, twenty showed no improvement, twenty-three improved slightly, and seven were improved considerably. This work was completed in the University of Minnesota Students' Health Service on presumably physically normal students. In all, thirty patients showed some form of improvement (60 per cent), while 40 per cent showed no signs of improvement.

In contrast to this series of findings on otherwise healthy patients, a recent article by Lichtenstein and Stillians has been published.² These clinicians chose tuberculous patients with concomitant acne vulgaris in order to put the author's method to a "rather severe test of the liver extract method of treatment," for they observed that "not only were we treating patients whose powers of resistance were lowered by disease, but we were competing with a diet ideal for the promotion of acne vulgaris." Their series of cases numbered fifty patients. They found that 21 per cent of the patients were greatly improved, 14 per cent were moderately improved, while 14 per cent were slightly improved, and 45 per cent received no benefit. They used no adjunct therapy during the test period. However, for the average run of cases, they advise combined therapy with such adjuncts as ultraviolet irradiation and lotions, since the liver extract method, when used alone, produces improvement slowly. These observers feel that they have demonstrated a definite action of the modified liver extract in certain cases of acne vulgaris in spite of a concomitant pulmonary tuberculosis.

A word of caution to future investigators may not be amiss at this moment. In a portion of the above series of cases, Lichtenstein and Stillians used a "modified" liver extract which was boiled.

It is important to stress the fact that this material, which they used, was prepared for them by Professor Farmer and myself in the Department of Biochemistry at Northwestern University Medical School. This particular fraction, which was supplied to these investigators, was prepared each week. It is not available through commercial sources, nor are facilities available at this time to supply other clinicians with a similar fraction.

Another point should be explained. There are numerous types of liver extracts on the market which are available to the profession. These products vary in their chemical and physical properties, and because of this reason, caution should be exercised in choosing the proper type of material to be used according to the boiling technique which has been advocated by the author.³ The various procedures which are employed by the various pharmaceutical firms in order to render their products more potent, as exemplified by the U. S. P. dosage, may remove the apparent factor which the liver extract contains and which apparently brings about clinical improvement when the material is administered to patients with acne vulgaris. In other words, if one wishes to employ the original boiling technique,³ it may be well to obtain the so-called *crude* liver extract, or the material which contains a minimum amount of U. S. P. units per cubic centimeter. Most of these crude liver extracts contain but one or two U. S. P. units per cubic centimeter. Such products can be obtained from the Eli Lilly Company, Lakeside Laboratories, from the Abbott Laboratories, or from other ethical and reliable pharmaceutical firms. If the above precaution is followed, perhaps much misunderstanding on this matter may be averted.

For my most recent investigations, I have been using a fraction which is different from that which was supplied to Doctors Lichtenstein and Stillians. It is hoped that this data, on this most recent research, may be made available in printed form in the near future. Suffice it to say at this time, these results appear promising and so far

have been without untoward local or systemic reactions, which have been experienced previously with the use of crude and boiled liver extract.⁴ For this important reason, caution should be exercised if a patient becomes hypersensitive to any type of liver extract when it is administered parenterally. In such a case, further treatment with this medication is contra-indicated. However, further treatment with liver extract by mouth can be tried with care. Various suitable commercial oral liver extracts in a capsular form are available for this use.

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OCULAR MANIFESTATIONS OF SOME CONSTITUTIONAL DISTURBANCES

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IT IS a well-established fact that the eye is most important clinically for purposes of diagnosis. The physician often sees a patient who will, on first glance, call to mind some associated constitutional disturbance whether it be hereditary, endocrine, neurogenic, metastatic, or purely functional. Many of our patients complain about their eyes before other parts of the body become involved. To ignore these complaints and to overlook diagnostic points will often delay the physician in arriving at the proper diagnosis, whereas familiarity with some of the more common ocular conditions will many times give one a valuable lead.

During the year 1941, several patients presented themselves for treatment, complaining of difficult near and distant vision. A routine refraction brought out no evidence of any underlying fundus disease which would cause one to recommend blood and urine examinations or seek medical or neurological consultation. Vision in all but one patient was brought to normal with lenses and they were advised to return for a checkup after wearing the glasses. In all cases they returned as ordered, at intervals of two weeks to six weeks. The immediate reaction in three cases was to throw the glasses on the desk

and complain that they could not see with them. Examination revealed that vision had decreased markedly since the previous visit. Fundus examination was still normal but fields now showed a marked contraction. Search was then made for the primary cause of the patients' sudden loss of vision.

Case 1.—Q. N., white male, aged thirty-eight, by occupation a barber, was first seen on February 26, 1941, complaining of difficulty with close work. He was corrected fully for both near and distant vision. On March 10, he returned complaining that he was very uncomfortable. Vision was reduced to R. 20/60, L. 20/40. There was no fundus change to account for this sudden loss. He was sent to his family physician who found three plus sugar on urine analysis. Proper therapy was begun and immediate improvement was noticed. The difficulty for close work was due to temporary loss of accommodation brought on by the diabetes. It was necessary to cut the strength of his hyperopic correction nearly 50 per cent after which all complaints ceased. No visible ocular changes developed.

Case 2.—D. P., white male, aged fifty-five, had for many years been a well-controlled diabetic. In 1938, he had normal vision with glasses. In March, 1941, a routine refraction revealed a slight diminution in vision, R. 20/30, L. 20/25. His glasses were changed. Peripheral fields were practically normal. Because of the diabetic history, he was accustomed to having a complete physical checkup every year. This was done and nothing new found. On July 7, 1941, the patient re-

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turned complaining of inability to see with his glasses. Vision was now, R. 20/100, L. 20/50. Peripheral fields had not changed much but a central scotoma for red was found on the right. He had noticed difficulty in seeing at night and had trouble interpreting traffic lights.



Fig. 1. Case 4. Myasthenia gravis. Attempt is being made to wrinkle forehead causing a convergent squint of left eye.

Search into the history revealed that the patient had smoked eight to ten cigars daily for over twenty years and had been accustomed to having one or two highballs every night for an equal period of time. Complete alcohol and tobacco abstinence was advised and the patient was given 50 mg. doses of thiamin parenterally and also large doses of B-complex orally. The improvement in vision took place quickly. Field changes improved more slowly. The latest examination in March, 1942, showed the scotoma still present but smaller. The vision had improved to 20/25 in each eye. The patient hadn't smoked for eight months, and had reduced his alcohol intake to a minimum. His only complaint was the fifteen-pound gain in weight from the improved appetite associated with Vitamin B therapy and cessation of smoking.

Case 3.—X. C., white male, aged forty-five, by occupation a barber, complained in October, 1941, of inability to cut hair well because of poor vision and he wanted a pair of glasses to relieve this. The usual examination for glasses revealed a presbyopic condition about normal for his age. The patient was instructed to use glasses for reading only. He returned in one month complaining that he could not use glasses as they made him sick. Field studies were made showing centrocaecal scotoma, typical of alcohol-tobacco amblyopia. Further history brought out the fact that the patient smoked two packages of cigarettes daily and was accustomed to having eight to twelve drinks daily for many years. A careful medical checkup was advised and revealed peripheral neuritis, an enlarged liver and marked nervous irritability. His physician instituted treatment for the alcohol-tobacco amblyopia similar to that in Case 2. He was also placed on a high fat, high vitamin diet, and hospitalized for two weeks to get him into a suitable regime. Improvement was slow and it was not until February, 1942, that

the patient was able to resume his normal duties. He reported in March that he was feeling fine and having no more trouble. This is too short a period of observation, however, to feel sure of the outcome.

Case 4.—Mrs. E. L., white female, aged forty, was seen in March, 1941, complaining of headaches and twitching of the eyes. She was given a routine refraction on March 31 and was relieved of symptoms with glasses. At this time a complete medical history would have elicited some interesting findings but none was taken. The patient returned in November, 1941, with headaches and a coincident acute sinusitis which confused the picture somewhat. She was slow to recover from the sinus infection and soon began to complain of extreme weakness. The history now brought out the fact this weakness had been coming on for over two years. Her facial expression was very dull; a partial ptosis of both lids was present; diplopia was present at times; it was impossible for her to wrinkle up her forehead and on so attempting a marked convergent squint developed. Visual fields were taken which showed a depression peripherally. This is not in accord with the usual findings of most authorities. Large doses of thiamin intramuscularly brought sudden, but not lasting improvement. The puzzle over the diagnosis began to clear up especially after the intramuscular therapy was changed to prostigmin. The patient was referred to a neurologist who confirmed the diagnosis of atypical myasthenia gravis. Prostigmin orally 15-30 mg. t.i.d. and 1 c.c. of 1:2000 prostigmin intramuscularly twice weekly enables the patient to continue with her normal activities. The unusual features are the convergent squint rather than the more common divergent type and the involvement of the peripheral fields.

Case 5.—This patient, white male, aged fifty, was refracted in November, 1941, and vision brought up to normal with glasses for both distance and near. He returned in December with a marked loss of vision and involvement of visual fields. He admitted on questioning to have a lighted pipe in his mouth eight hours a day and also stopped in for several drinks on the way home every night. His family physician found a mild diabetes along with the tobacco-alcohol amblyopia. The diabetes is under control, but in April, 1942, the vision was still 20/200 right and 20/50 left, showing that the toxic amblyopia will be slow to improve.

The preceding cases are all examples of optic nerve affections. Alcohol and tobacco as exogenous toxins go together as common causes of toxic amblyopia. There is no definite evidence as to the site of the lesion in this condition. About all that one can say is that tobacco in certain individuals seems to affect definite nerve elements since no other disease produces this type of field change, that is, the centrocaecal type of scotoma with depression for red and green. Since Amer-

ica has been drinking better liquor, alcohol amblyopia per se should become a rarity. Traquair² states that, apart from tobacco, pure alcohol amblyopia is almost unknown in England. It appears to be the fusel oil, acids, aldehydes and furfurals which contain the toxic factors. The incidence of the disease depends on the quality, not the amount, of alcohol consumed. Diabetes, according to the same authority, is not a particular cause of amblyopia, although there are present endogenous toxins which produce field changes. However, any illness may cause the development of amblyopia if enough tobacco is consumed.

Myasthenia gravis is interesting to oculists because of its predisposition to involving ocular and facial muscles, giving the diagnostic sad appearance, with ptosis, dysphagia and diplopia. No at-

tempt will be made to discuss the theories of its etiology and treatment. Only one authority mentions visual field changes in this disease and then only as "transient concentric constriction."

Summary and Conclusion

The purpose of this paper has been to stress the diagnostic importance of sudden visual changes and contraction of visual fields. In all these cases the pathological changes had no doubt been going on for some time, yet were undetected in a routine refraction.

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A WORD OF WARNING

When sulfadiazine was introduced to the medical profession, it was accepted with alacrity and enthusiasm. And small wonder, for early studies on the toxicity of the drug suggested that it had the desirable qualities of sulfapyridine and sulfathiazole but fewer toxic effects. There was less acetylation, the factor that made for urolithiasis, and hence it was a safer drug as far as renal excretion was concerned. This, together with its lesser gastrointestinal irritation, its less frequent and less marked cyanosis, and its fewer toxic effects on the bone marrow, led to a wider use of the drug. In some instances, lulled into a false sense of security, physicians may have given the drug indiscriminately and in doses excessive for conditions not warranting drastic treatment.

Reports of serious renal complications are now steadily accumulating.^{1,2,3,4} This was virtually predicted on the basis of animal experiments by two groups of

laboratory investigators^{5,6} who demonstrated the frequent occurrence in rats of urolithiasis following sulfadiazine therapy. Now we have pathologic evidence in the human that acetylated sulfadiazine crystals may accumulate in the renal tubules, with degeneration and necrosis of the tubules and surrounding tissue. A zone of inflammation, associated with hemorrhage, may surround the deposited crystals. Anuria and death, as a result of this, have been reported in several instances. It seems that while acetylation of sulfadiazine is of a lesser magnitude than that of the other sulfa drugs, it may have a more damaging effect on the renal tubules and the adjacent involved renal tissue.

Two lessons are to be learned from these reports and their pathologic findings. Sulfadiazine should be used only when genuinely indicated and for as short a period as possible. Not only the blood but the urine should be frequently examined, preferably daily. When microscopic hematuria appears, the drug should be continued only in cases of dire necessity. If urinary secretion is decreasing, fluids should be forced, intravenously if need be, and alkalis should be administered for greater solubility of the crystals. If ureteral obstruction has taken place, early catheterization of the ureter should be done. The best treatment is prevention—by judicious use of the drug, and careful, expectant observation for danger signals.—Editorial, *New York State Journal of Medicine*, September, 1942.

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THE TUBERCULOSIS PROGRAM OF THE MINNESOTA STATE MEDICAL ASSOCIATION

At the first annual meeting of the Minnesota State Medical Association in February, 1870, the tuberculosis work was assigned to the Committee on Epidemics, Climatology, and Hygiene. It remained with this committee until June, 1894, when a special committee on tuberculosis was appointed. An excellent report was made in 1895, after which the committee was continued.

About 1925 a number of Minnesota physicians began an extensive educational campaign. Many who volunteered to assist traveled over the state for several years and spoke before all of the medical societies on one or more occasions. They participated in numerous special short courses on tuberculosis for physicians. Through an affiliation with the Minnesota Public Health Association they also spoke before large numbers of lay groups in schools, churches, et cetera. All of this was done for the purpose of acquainting the medical profession, as well as the public, with the modern viewpoint of tuberculosis control.

In 1931 the tuberculosis work of the State Medical Association was carried on as a part of the activities of the Public Health Education Committee and in 1934 a sub-committee on tuberculosis was appointed. In 1941 this became an independent scientific committee.

In 1939 a statewide campaign against tuberculosis was instituted by the State Medical Association. We are deeply indebted to Dr. Chester A. Stewart, who was then a Councilor, for precipitating action of the Council and providing splendid support for the Committee on Tuberculosis.

Several meetings of the Committee were devoted to the fundamentals of diagnosis, treatment, and prevention of tuberculosis, in order that the Committee might recommend the procedures which are standard and practical for the physicians of Minnesota. It is the opinion of the Committee that the medical profession of Minnesota has available all the information necessary and all the required facilities to control tuberculosis.

Fundamental and Standard Procedures in Tuberculosis Control

Diagnosis

The Tuberculin Test

Kinds of Tuberculin.—Old Tuberculin contains the various fractions of tubercle bacilli, such as the carbohydrates and protein. It is only the protein to which the human tissues become sensitized. Despite the claims of the opponents of tuberculin testing, Old Tuberculin contains no tubercle bacilli either alive or dead; therefore, there is no possibility whatsoever of tuberculosis being contracted from tuberculin. *Purified Protein Derivative*, as the name indicates, consists only of the protein of tubercle bacilli.

Where May Tuberculin Be Procured?—The Minnesota Department of Health and some local health departments are equipped to provide without charge to all physicians in the state Old Tuberculin in the proper dilution for immediate administration. Purified Protein Derivative may be obtained from drug houses.

Method of Administration.—Numerous methods of administering tuberculin have been devised, such as: (1) applying it directly to a superficial scarification of the skin, as recommended by Pirquet; (2) applying it directly to the skin without producing a scarification, as was originally recommended by Moro and Lautier, and more recently by Wolff under the name of the tape test, and Vollmer under the name of the patch test; (3) introducing tuberculin in proper dilution directly into the layers of the skin. This last method is known as the intracutaneous or intradermal test of Mantoux. *This has become the standard method because of the measured dosage, the accurate placing of tuberculin where it is desired, and the speed with which it can be administered.* The only objection to this method is the use of a needle and the injection of a substance into the skin. To give such an objection consideration is a paradox, since we must use the same procedure to determine the presence or absence of immunity to diphtheria and scarlet fever. Moreover, a hypodermic syringe must be used in producing artificial immunity in these diseases and in withdrawing blood for various tests.

Dosage.—The initial test dose of Old Tuberculin consists of 0.1 cubic centimeter of a dilution of one part of tuberculin to 999 parts of diluent. This amount contains 0.1 milligram of tuberculin. For those who do not react to this initial test a second dose is administered, consisting of 0.1 cubic centimeter of a dilution of one part of tuberculin to ninety-nine parts of diluent (these dilutions are prepared and delivered ready to administer by the State Department of Health). This amount contains one milligram of tuberculin. If no reaction occurs, one is safe in stating that living tubercle bacilli are not present in the body.

Time of Interpreting the Test.—The Committee strongly recommends that all tuberculin tests be interpreted seventy-two hours after administration, since changes in the appearance of the skin due to trauma, etc., have usually disappeared at that time and also delayed reactions to tuberculin may have appeared. A characteristic tuberculin reaction remains longer than seventy-two hours.

What Constitutes a Tuberculin Reaction?—An area of induration or edema of the skin five or more millimeters in diameter at the site of administration is necessary to classify the tested individual as a reactor. This may or may not be surrounded by an area of hyperemia. Small areas of redness or pinkness of the

Submitted by the Committee on Tuberculosis of the Minnesota State Medical Association.

skin or shot-like nodules at the point of administration should never be interpreted as reactions to tuberculin.

Intensity of Tuberculin Reaction.—Generally speaking, the more recent the tuberculous infection, the higher the degree of sensitivity to tuberculin. So far as is known, there is no relationship between the intensity of reaction and extent of disease except in terminal cases. An individual with only microscopic lesions may have more sensitive tissues than one with gross areas of disease. Therefore, there is no advantage in grading tuberculin reactions into 1, 2, 3, and 4 plus; it suffices to determine only the presence or absence of the characteristic reaction.

How Often Should the Tuberculin Test Be Administered?—Until recently it was believed that the individual who becomes a reactor to tuberculin is always a reactor. However, it has been found that in the bodies of some persons all tubercle bacilli die and the tissues lose their sensitivity to tuberculin. It has not been determined how frequently this occurs or how long an interval is required. Because it is an established fact, however, the individual who reacts to tuberculin should be retested every three or four years. All persons who do not react to the usual second dose of tuberculin should be retested at least annually.

When Does the Tuberculin Test Fail?—After the primary tuberculosis complex begins to develop, it requires from three to seven weeks before the tissues become sufficiently sensitized to tuberculo-protein to react to tuberculin by the usual method of administration. In some persons all tubercle bacilli die but the sensitivity of the tissues apparently persists for a few weeks thereafter. When tuberculosis approaches the terminal stage, whether it is acute or chronic, the tissues apparently become somewhat desensitized and may not react to tuberculin except when a large dose is administered. Aside from these exceptions the tuberculin reaction is almost 100 per cent accurate in determining the presence or absence of tubercle bacilli in the human body.

Who Should Be Tested With Tuberculin?—The belief that only children should be tested with tuberculin is obsolete. Today there is no age level at which tuberculin testing is not of value. The test should be administered to all persons from infancy through senility. In the state of Minnesota the annual infection attack rate is 1 per cent or less; that is, among infants who have attained the age of one year, only one in 100 has been infected and, therefore, reacts to tuberculin. In some parts of the state the attack rate is less than one-half of 1 per cent each year. Therefore, since the span of life is in the neighborhood of sixty-four years it is obvious that with an annual attack rate of 1 per cent or less, far more persons become infected with tubercle bacilli for the first time in adult life than in childhood and many completely escape infection. Thus, the tuberculin test should be used among persons of all ages.

The Meaning of the Tuberculin Reaction.—When a characteristic tuberculin reaction is present, it means there are living tubercle bacilli in the body with the above exceptions. Since it is only tubercle bacilli that cause tuberculosis, it is significant to know when these organisms are present. They may already have produced clinical disease or if not they may cause it to develop at any subsequent time. Therefore, the test serves to screen out those persons from any group who already have or are potential cases of clinical tuberculosis. With the above exceptions, the absence of a tuberculin reaction is excellent evidence that living tubercle bacilli are not present in the body.

Practical Significance of the Tuberculin Test.—The tuberculin reaction provides the physician with two extremely important and practical facts. 1. It promptly determines that the reactor has been in contact either directly or indirectly with a contagious case of tuberculosis. (Infection from animals, particularly cattle, has become a rarity in Minnesota.) Often such cases are unsuspected, since the responsible individual is not ill: therefore, the examination of adult contacts frequently brings to light persons with contagious tuberculous lesions who have good working capacities, as well as those who believe they have only such conditions as asthma and bronchitis. Obviously, the more recent the infection, the greater the likelihood of finding the contagious case among the adult associates. (Children disseminate tubercle bacilli to others with great rarity.) For example, when a child between birth and six or seven years of age is found to react, the physician who searches for the source of the infection often finds it in a member of the immediate household; the younger the child, the greater the likelihood of finding the contagious case. Likewise, when older children and adults are tested periodically and an individual who was a non-reactor a year ago is found to react today, it is obvious that some adult contact during that year had contagious tuberculosis and careful investigation often discloses the spreader of tubercle bacilli. Thus, the tuberculin test is our most valuable epidemiological agent.

2. Since the tuberculin reaction determines the presence of living tubercle bacilli in the individual's body, it indicates an immediate adequate examination of the reactor for clinical tuberculosis, not only in the lungs but in all parts of the body in which this disease is frequently found. If clinical disease is not located the reactor should be examined in a similar manner at least annually.

X-Ray

The roentgen-ray is of great value in detecting areas of disease in certain parts of the lungs, after they have become macroscopic in size and before they are sufficiently large to cause symptoms. However, no phase of x-ray inspection is a substitute for the tuberculin test, in any sense of the word. Nevertheless, every tuberculin reactor should have periodic x-ray inspection of the chest. Chronic tuberculous lesions in the lungs often cast x-ray shadows two or three years before significant symptoms appear.

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Methods of Using the Roentgen-Ray.—Fluoroscopy is valuable, particularly in inspecting the chests of small or thin individuals. It permits one to visualize nearly all of the lung when the chest is properly rotated and, thus, shadows may be seen which are obscured from view on x-ray films by the heart, diaphragm, and other structures. Many physicians are not able to take the necessary time to accommodate the eyes for fluoroscopic inspection of the chest and, thus, much is overlooked which might otherwise be visualized. Fluoroscopic inspection is not as satisfactory as the x-ray film for detail; moreover, no record of shadow is made which may be compared with subsequent inspections. Therefore, it is recommended that x-ray film be used whenever possible but in the absence of adequate facilities the fluoroscope may be used to great advantage.

Photofluorograms made by photographing the images from the fluorescent screen are now being made on 35 millimeter and 4x5-inch film. The cost of these films is small but the necessary equipment for exposing them is expensive. The Committee does not feel that these films have yet been demonstrated to be of sufficient value to take the place of the 14x17-inch film.

X-Ray Film.—Standard size, 14x17-inch x-ray film, either celluloid or paper, should be used whenever possible to inspect the chests of tuberculin reactors. Several members of the Committee have had extensive experience with both celluloid and paper film and have found them equally good in detecting shadows of disease. Therefore, the choice of film is left entirely to the physician's judgment. However, no film should be made except with standard technique, so well executed that the usual normal lung markings are clearly visible on the finished product. These films should be preserved not for five years but indefinitely, regardless of whether they show any evidence of disease, in order that they may be compared with films made subsequently. The tuberculin reactors whose x-ray films reveal no evidence of disease in the lung on the first inspection may at any subsequent time develop one or more pulmonary lesions.

Unfortunately, the x-ray film of the chest possesses certain disadvantages in the detection of tuberculosis: 1. There are several pulmonary diseases which cast identical shadows; therefore, etiological diagnosis from x-ray shadows cannot be made with a high degree of accuracy. 2. Only 75 per cent of the lungs is visualized on the usual single x-ray film of the chest; the remainder is obscured from view by shadows of other structures, particularly the heart and diaphragm. 3. Extra-pulmonary clinical tuberculosis is not uncommon in persons whose lungs appear clear on x-ray film inspection.

Who Should Have X-ray Film Inspection of the Chest?—Chronic pulmonary tuberculosis is such a rarity in children from birth to high school age that there is almost nothing to be gained by inspecting with x-ray the chests of even the reactors to tuberculin. However, with the beginning of the period of adolescence, x-ray

film inspection should be made periodically of the chest of every reactor. There is no age level at which this work should be stopped, as long as the individual reacts to tuberculin. Persons whose lungs have been clear throughout the earlier decades may, and often do, develop chronic, pulmonary tuberculosis in the later decades of adult life. Whether or not a physician limits his work to x-ray, he should describe shadows and list the possible etiological factors but never attempt a final diagnosis from the film alone.

Clinical and Laboratory Examinations

The tuberculin test screens out those persons who have living tubercle bacilli in their bodies. The x-ray film inspection of the chest serves only to screen out those persons who have macroscopic lesions in the visualized part of the lungs, which may be tuberculous. Therefore, persons with such lesions should be carefully examined to determine etiology. Many individuals with lung lesions are entirely free from symptoms and abnormal physical signs. If sputum is present, it should be carefully examined for the various organisms which may be responsible for the lesion, particularly acid-fast bacilli. If no sputum is available, gastric lavage is helpful. This is done by administering by mouth 200 c.c. of water before breakfast. A few minutes later the gastric contents are removed, centrifuged, and the sediment examined for acid-fast organisms. A guinea pig should also be inoculated with some of the sediment. This aids in determining whether the acid-fast organisms seen through the microscope are pathogenic. It may also reveal the presence of tubercle bacilli even though they have not been detected by direct microscopic inspection. If tubercle bacilli are not recovered in this manner, one may need to resort to periodic inspection of the shadow on x-ray films. If a shadow is cast by an acute lesion, such as pneumonia, it usually disappears within a month; if it persists longer than four or five weeks it is probably due to one of the more chronic diseases, such as those caused by fungi or tubercle bacilli, and may even be malignant. Bronchoscopic inspection and the procurement of material for biopsy may be necessary. When malignancy is suspected this should be done at the earliest possible moment.

Management of Tuberculous Patients

Tuberculosis begins in the human body when tubercle bacilli are first ingested by neutrophils and are focalized at certain points where tubercle formation occurs. It may never develop beyond the lesions of the primary complexes. On the other hand, it may at any time develop to proportions resulting in illness and death. This terminal event may follow a long succession of remissions and exacerbations extending over many years or several decades.

One of our chief difficulties has been that we have not recognized the presence of tuberculosis until it produced symptoms to the point of causing incapacity. Thus, we have used the word "tuberculosis" synonymously with "consumption." It is only when we recognize tuberculosis as a disease from its very beginning,

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when its presence is manifested only by the tuberculin test, that we will be in a position to properly manage the disease in a given individual or among the persons of a community. Therefore, the management of tuberculosis in a community or a county consists, first, of determining which persons react to tuberculin at a given time, as well as those who subsequently become reactors. No matter how clear the films of the chests of these persons appear or how well they are, some of them will later develop clinical lesions in the lungs or elsewhere; therefore, the proper management of the group with no manifestations of tuberculosis except the tuberculin reaction consists of keeping them under close observation; that is, making examinations at least annually for the presence of clinical lesions. When such lesions appear in the lungs they can usually be detected long before they cause illness or eliminate tubercle bacilli through the sputum. At this time they can usually be controlled and prevented from causing illness or becoming contagious to others. Moreover, this can be done with little inconvenience or loss of time to the patient.

Among tuberculin reactors a group will usually be found who on the first examination have tuberculous lesions in the pre-symptom and pre-contagious stage. They can be treated in the same manner.

Another group will be found that already has disease so extensive that the lesions are eliminating tubercle bacilli and some symptoms are present. Such persons should be isolated at the earliest possible moment, preferably in institutions. The sanatoriums in the state of Minnesota were built primarily for isolating contagious cases of tuberculosis and, secondarily, for saving as many lives as possible. To date such a high percentage of patients admitted have had tuberculosis so advanced that the majority could not be fully restored to health. Nevertheless, without the sanatoriums of Minnesota the present encouraging situation could not have been possible.

Only a few years ago most of our sanatoriums had long lists of patients desiring admission; today several of them have vacant beds. Therefore, those persons who are found to have contagious tuberculosis can promptly be removed from their communities and isolated in institutions as long as their disease is contagious.

The physician in private practice, therefore, has a large role to play in the management of tuberculosis in his community even among those who must be sent to sanatoriums. He sees them during the pre-sanatorium period and must take care of those who return from the institution. Thus, the local physicians of a county are in a position to control tuberculosis by preventing persons with contagious disease from spreading tubercle bacilli to others and preventing most tuberculin reactors from developing contagious disease.

Physicians Should Assume Leadership in Local Health Problems

The Committee believes that the local medical profession should be active in the control of tuberculosis in each county. The diagnostic, therapeutic, and preventive work has been so standardized that it can be

carried on by all physicians who are willing to become interested and to devote a reasonable amount of time to it in their offices and their communities. Survey methods, conducted in cooperation with the local medical profession, to discover tuberculosis, are usually of value in finding cases and for public education. When adequate x-ray equipment and laboratory facilities do not exist in the local offices of physicians or the hospitals, it may be practical to introduce x-ray devices, etc., when the same is approved by the local medical profession. It is only in this manner that tuberculosis work can be adequately conducted and perpetuated to the point of bringing the disease to the irreducible minimum in the shortest possible time. The state of Minnesota now possesses adequate facilities for isolating contagious cases of tuberculosis; indeed, we have many vacant beds in our sanatoriums. The physicians in private practice are qualified to treat the non-contagious cases. Thus, the medical profession has at hand every necessary facility to control tuberculosis.

Control of Tuberculosis on the County Area Plan

To try to develop a tuberculosis control program on a state-wide basis at once did not seem feasible. Therefore, the Committee decided the problem would be simplified by working on the county area plan. It was thought best to select a demonstration county from which the work could extend to others. Several counties were considered with reference to such factors as population, financial rating, physicians, nurses, welfare workers, tax delinquencies, tuberculosis mortality, and previous tuberculosis work accomplished, as well as present interest manifested. On August 1, 1940, Meeker County was the unanimous choice of the Committee. On August 19, representatives of the Committee met with the physicians practicing in Meeker County, who without exception approved the plan and expressed a desire to control tuberculosis at the earliest possible moment. Following that date until September, 1941, nearly all regular meetings of the Tuberculosis Committee were held at Litchfield, with the physicians practicing in Meeker County. Considerable time was spent in the discussion of the program and the actual procedure. As far as we know, this is the first time that a county medical group has sponsored a complete tuberculosis control program and we have been unable to find anywhere the record of a finer spirit of cooperation among physicians than that manifested by the Meeker County group.

The Meeker County Program

1. It was decided that the first step in the program should be the administration of the tuberculin test to persons of all ages among the total population of approximately 20,000. This would immediately divide the population into two groups: (a) Those who do not have tubercle bacilli in their bodies. These persons, together with those who move into the county and those subsequently born, to be tested annually as long as they do not react. (b) Those who have already developed the primary tuberculosis complex and, thus, have previously been exposed to contagious cases of tuberculosis.

2. All persons found to react to tuberculin on the

first test or subsequently should have x-ray film inspections of their chests in order to determine which of the reactors have macroscopic lesions in the lungs that might be due to tuberculosis. For this purpose the physicians of Meeker County decided to use the paper film because it has been found to be as satisfactory as celluloid film and also because of its lower cost.

3. All persons found to have lesions as manifested by shadows on the x-ray film to be completely examined to determine the etiology of their disease and those who prove to have clinical tuberculosis in a contagious form to be isolated at once. Those with disease in the pre-contagious stage to be treated either by the local physicians or sent to a sanatorium as indicated.

The Minnesota State Department of Health, through its Executive Secretary, A. J. Chesley, M.D., and its Director of Public Health Nursing, Miss Olivia Peterson, have aided and directed the County Public Health Nurse and School Nurse in this program. An intensive educational program was conducted throughout Meeker County by the Minnesota Public Health Association, the Meeker County Public Health Association, and numerous local organizations. The newspapers of the county have played an important role in bringing to the attention of the citizens everywhere the importance of controlling tuberculosis. It was arranged to have most of the tuberculin testing done in the offices of physicians and in schools when the physicians chose to go there for this work. Adequate x-ray equipment was found to be available in four offices and in the Litchfield Hospital. All x-ray work was scheduled for these five places. The local physicians are well qualified in x-ray interpretation, as well as all phases of the complete examination necessary to determine the etiology of disease which casts shadow on the x-ray film. Therefore, the medical profession of this county unit is self-sufficient from the standpoint of diagnosing tuberculosis in all of its phases of development. This also applies to the treatment and prevention of the disease.

The actual work began in May, 1941. The physicians arranged to send a special message to the head of each household in an entire township. This message contained information concerning the program and also an invitation to report to the physician or hospital of the family's choice for the tuberculin test. Following this the work has been extended from township to township.

On May 1, 1942, the Meeker County physicians reported that approximately 5,412 persons had been tested with tuberculin and 22 per cent reacted. Among the reactors, ten were found to have clinical pulmonary tuberculosis. In addition to actually finding the persons with chronic pulmonary tuberculosis a large amount of interest has been created among the citizens which we believe will result in numerous periodic examinations, after the demonstration is completed. While the physicians are doing all the work of the demonstration with no remuneration whatsoever, as only materials and costs are being provided, no one could expect that this would be continued beyond the period of the demonstration. However, we feel that the demand for examinations for tuberculosis will be so

increased as to result in good for all in future years.

The physicians practicing in Meeker County are establishing standards by actual practice and the work has proceeded to such a point that we believe medical societies of other counties will soon begin a similar tuberculosis control program. Indeed, the physicians in some counties have already made inquiry and expressed a strong desire to proceed at the earliest possible time.

Recognition or Accreditation of Counties

On September 25, 1941, the Committee discussed the advisability of setting up certain minimum standards in tuberculosis control which might serve as a basis for special recognition or accreditation of counties which qualified. Dr. A. J. Chesley, executive secretary of the Minnesota Department of Health, provided a list of the eighty-seven counties, together with the mortality rate from tuberculosis over the past five years. After studying these mortality rates, the Committee members were of the opinion that one standard for special recognition might be an average mortality rate of ten or less over the past five years. It was found that four counties, namely, Lincoln, Murray, Olmsted and Stevens, already had this low mortality rate. The Committee was of the opinion that incidence of tuberculous infection among seniors in high schools of the county might serve as a second standard for special recognition. At the September and October meetings these standards were discussed and it was decided that a county would be considered as qualifying for recognition if the annual average mortality rate over the past five years was ten or less per 100,000 and a recent testing of at least 80 per cent of all high school students in the senior classes revealed not more than 15 per cent infected.

A county outline map of the State of Minnesota was prepared on which the average mortality rate for the past five years is indicated by various degrees of shading. The lighter the county appears the lower the tuberculosis mortality rate (Fig. 1). There are several counties in Minnesota with the mortality rate between ten and fifteen per 100,000, which might soon qualify for accreditation if the seniors in their high schools meet the infection incidence requirement. In some counties the mortality rate is still high. This is especially true where there is a considerable Indian population with high mortality rates. For example, in one county it is said that about 3 per cent of the population is Indian and that this 3 per cent provides about 50 per cent of the entire tuberculosis mortality. Although splendid work is being done to control tuberculosis among the Indians, it is obvious that considerable time will be required to reduce the mortality rate and the infection incidence to the present standards. Therefore, it has been suggested that in such counties some special provision should be made whereby the mortality rate and infection incidence can be recorded separately for Caucasians and Indians or that special recognition be given for achievement in tuberculosis control among the Indians.

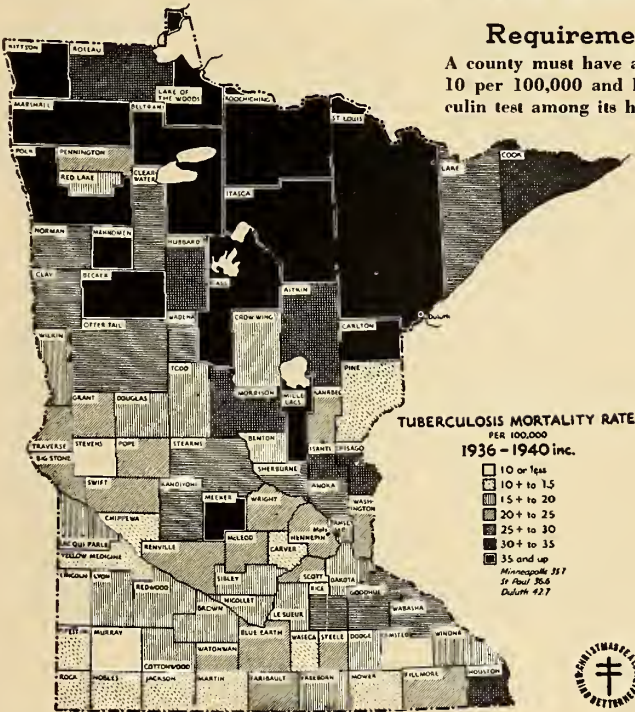
In St. Louis, Ramsey and Hennepin counties the mortality rate is still well above the minimum standard requirement for accreditation and because of the large

TUBERCULOSIS PROGRAM

population in these counties it is possible that somewhat lower standards may be necessary for a few years. The proposed plan of accrediting counties was submitted to the Council of the Minnesota State Medical As-

sociation and the Committee on Tuberculosis and the Department of Health prepare the certificate.” The subject was presented before the regular meeting of the Minnesota Department of Health on October 28,

Where Does Your County Stand?
STUDY THIS MAP!



Requirements for Accreditation
A county must have a tuberculosis death rate of less than 10 per 100,000 and less than 15% reactors to the tuberculin test among its high school seniors.

DEATH RATE OF 20 PLUS TO 25

Rank	County	Average Rate Per 100,000 1936-1940
31	Grant	20.5
32	Pope	20.8
33	Fillmore	21.9
33	Traverse	21.9
34	Faribault	22.1
35	Swift	22.2
36	Pennington	22.5
37	Blue Earth	22.9
37	Renville	22.9
38	Big Stone	23.2
39	Kanabec	23.3
40	McLeod	23.6
40	Steele	23.6
41	Washington	23.8
42	Wright	24.0
43	Hennepin	24.8
44	Scott	24.9
44	Watonwan	24.9

DEATH RATE OF 25 PLUS TO 30

45	Wadena	25.8
46	Anoka	25.9
47	Wabasha	26.1
48	Kandiyohi	26.2
49	Clay	27.3
50	Norman	27.4
51	Otter Tail	27.7
52	Stearns	28.4
53	Lake	28.7
54	Sherburne	29.1
55	Goodhue	29.2
56	Clearwater	29.5
57	Rice	29.6

DEATH RATE OF 30 PLUS TO 35

58	Roseau	30.1
59	Chisago	31.9
60	Morrison	32.5
61	Houston	32.9
62	Hubbard	33.4
63	Isanti	34.4
63	Cook	34.4
64	Aitkin	34.7

DEATH RATE OF 35 PLUS AND UP

65	Carlton	36.4
66	Koochiching	36.7
67	Meeker	36.8
68	Polk	36.9
69	Kittson	38.1
70	Itasca	38.9
71	Lake of Woods	39.2
72	Millie Lac	40.6
73	Marshall	45.3
74	St. Louis	46.2
75	Becker	46.6
76	Mahoumen	46.9
77	Beltrami	67.9
78	Cass	68.2

Minnesota Tuberculosis Death Rate by County
1936-1940 Inclusive

DEATH RATE OF 10 OR LESS
*Accredited Counties

Rank	County	Average Rate Per 100,000 1936-1940
1	Lincoln	5.5*
2	Olmsted	8.7*
3	Stevens	9.2
4	Murray	9.4

DEATH RATE OF 10 PLUS TO 15

5	Carver	10.3
6	Martin	10.7
7	Pine	11.3
8	Chippewa	11.9
9	Jackson	12.0
10	Nobles	12.6
11	Rock	12.8
12	Pipestone	13.4
13	Mower	13.9
14	Yellow Medicine	14.2
15	Waseca	14.6

DEATH RATE OF 15 PLUS TO 20

Rank	County	Average Rate Per 100,000 1936-1940
16	Cottonwood	15.1
17	Lac Qui Parle	15.5
17	Wilkin	15.5
18	Dodge	15.7
19	Ramsey	16.4
20	Sibley	16.9
21	Brown	17.5
22	Benton	17.6
23	Douglas	17.9
23	Le Sueur	17.9
24	Nicollet	18.9
25	Dakota	19.1
26	Red Lake	19.2
27	Winona	19.3
28	Crow Wing	19.8
29	Lyon	19.9
29	Todd	19.9
29	Freeborn	19.9
30	Redwood	20.0

Fig. 1.

sociation on October 12, 1941, when the following action was taken:

“The matter of issuing a certificate or some means of recognition to the four counties in Minnesota eligible for accreditation was discussed. It was moved, seconded, and carried that the State Department of Health and the State Medical Association, subject to the approval of the Department of Health, issue a certificate

in 1941, and the plan was approved. This body voted to appoint a committee from its membership to work with the Tuberculosis Committee of the State Medical Association. The president, Dr. Erling Platou, appointed Drs. Ruth E. Boynton and A. G. Shulze to membership on this Committee. Members of the Tuberculosis Committee had already drawn up some proposed recognition certificate forms. These were presented to the

TUBERCULOSIS PROGRAM

Minnesota Department of Health Committee, who selected the one they considered most appropriate. This was then submitted to Dr. Chesley, to all members of the Council, and to members of the Committee on

county in the United States to be accredited with reference to tuberculosis control in man. Olmsted County was accredited on May 22, 1942, Murray County on August 28, 1942, and in October, 1942, Stevens County

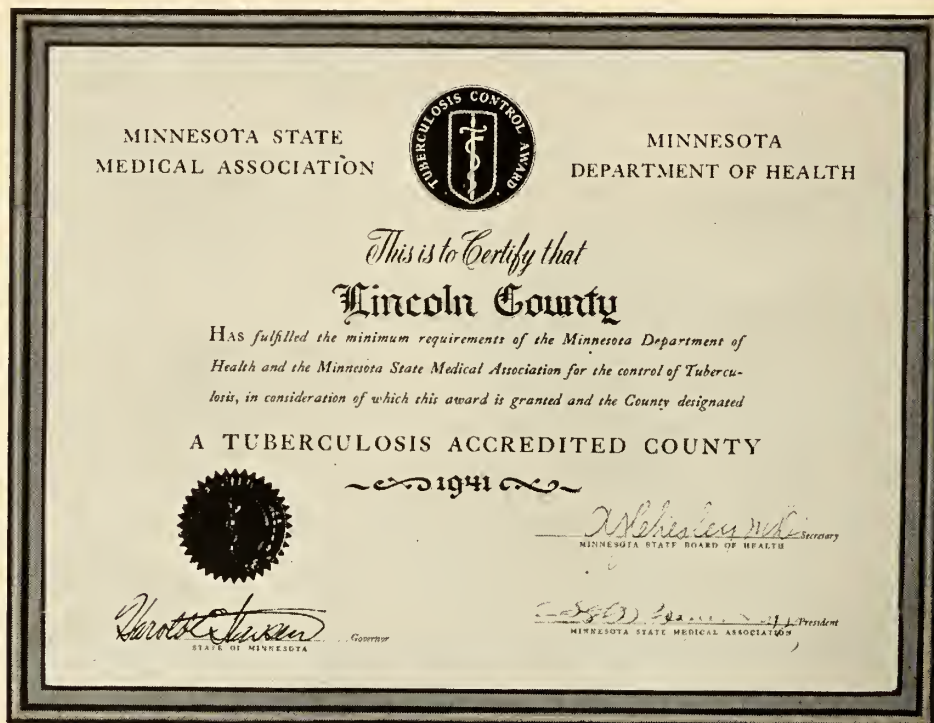


Fig. 2.

Tuberculosis of the State Medical Association for any suggested change.

Accreditation of Counties

Since Lincoln had the lowest mortality rate of any county in the state (5.5) for the past five years and since within approximately two weeks after special recognition was suggested the physicians of that county tested the high school senior students and found the incidence of infection to be only 7.4 per cent, the Committee decided to recommend to the Council and the Minnesota Department of Health that they jointly certify or accredit this county as the first one to attain the minimum standards. It was then decided that this event should be celebrated at Tyler, in Lincoln County, on December 11, 1941, when the certificate (Fig. 2) was presented. As far as we know this is the first

county in the United States to be accredited with reference to tuberculosis control in man. Olmsted County was accredited on May 22, 1942, Murray County on August 28, 1942, and in October, 1942, Stevens County

COMMITTEE ON TUBERCULOSIS, Minnesota State Medical Association.

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RELIEF FROM ASTHMA

"Beneficial results" and relief of asthmatic paroxysms in nearly three-fourths of a group of asthma patients were obtained by x-ray treatments, Dr. Ira I. Kaplan and Dr. Sidney Rubinfeld, of New York, reported.

The longer and more severe the illness, the more favorable was the response, the doctors stated. Often the symptoms got worse following treatment before they got better.

The patients were mostly men between thirty and fifty years who were allergic to various proteins but who were not helped by desensitization treatment. The x-ray treatment was given two to three times a week over the chest, occasionally over other parts of the body.—*Science News Letter*, September 26, 1942.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

A. J. Hertzog, M.D., and S. V. Lofsness, M.D.
Pathologists

Presentation of a Case

DR. M. TENEN: This case is that of an eighty-three-year-old white female who was admitted to the surgical service on June 26, 1942. She had recently fallen and suffered a fracture of the neck of the left femur. Her previous history is most significant. At the age of sixteen years, a small growth about the size of a pea was noticed on the right side of her face in front of the ear. It caused no symptoms but slowly enlarged, reaching the size of a chicken egg at the age of forty years, when it was excised. The tumor has since been removed six times at various hospitals but always recurred. In 1923, the tumor was diagnosed in a Minneapolis hospital as adenocarcinoma. In 1933, following removal of the tumor at the University hospital, the diagnosis was squamous cell carcinoma. However, following a discussion between the surgeons and pathologists, the diagnosis was changed to mixed tumor of the parotid. In 1936, radon seeds were implanted. The tumor gradually grew larger and during the last four years infiltrated the whole right side of her face and extended 6 cm. below the lower border of the mandible. She became blind and deaf on the right side during the last two years of her life. The fracture of the neck of the femur was treated by spica. However, the tumor of her face prevented her from eating and her weight dropped to 80 pounds. She became weaker and expired on August 29, 1942.

DR. GRATZKE: Radiographs made on August 25, 1942, show a complete destruction of the right mandible and erosion into the basilar portion of the skull, maxilla, and orbit. The malar bone and zygomatic process are also destroyed. The areas of decreased density in the tumor suggest adipose tissue, while the areas of increased density resemble bone and fibrous tissue. Old radon seeds are seen in the upper portion of the tumor in the region of the parotid gland. The tumor is quite invasive and suggests a myxosarcoma.

DR. HERTZOG: This is an unusual history for a malignant tumor. The tumor was first noticed at the age of sixteen years and she died at the age of eighty-three years, a total duration of sixty-seven years. I would like to ask what was the immediate cause of death?

DR. TENEN: She died of starvation because the tumor prevented her from eating.

Autopsy Findings

DR. TENEN: Autopsy revealed an emaciated elderly female weighing only 80 pounds. The right lung weighed 840 grams and the left lung 320 grams. The right lung showed bronchopneumonia and the right pul-

monary artery was occluded by a large antemortem blood clot. The source of the pulmonary embolus was not found. The other anatomical findings of interest were limited to the face. There was a tumor that extended from the right orbital region to about 6 cm. below the inferior border of the right mandible. The right mandible was infiltrated and destroyed by the tumor. The tumor also infiltrated inward and involved the entire inner surface of the cheek and extended posteriorly to the pharynx. It also extended up behind the right eyeball, pushing the bulb forward with a resulting exophthalmus on that side. The tumor had infiltrated the floor of the middle cerebral fossa, pushing up the temporal lobe but not infiltrating the brain. The defect in the skull measured 3 cm. in diameter. Photographs of the specimen are shown.

DR. LOFSNESS: We have several slides from the tumor taken at autopsy. These at the periphery show evidence of rapid growth and are composed largely of solid masses of epithelium and small irregular glands. Other sections show a myxomatous stroma between the islands of epithelium. There are no areas of cartilage. The other slide is one of a bronchial lymph node. It was sectioned because it was thought that it might represent metastasis. However, it shows only chronic inflammation and a large amount of carbon pigment. Although she had this large tumor for sixty-seven years, the autopsy showed no evidence of any metastases.

DR. HERTZOG: I think the slides show the cause of the discrepancy in the earlier histological diagnoses. If a section was taken through the solid areas, it could be called an adenocarcinoma. It is only when the myxomatous stroma of the tumor is seen that we recognize that we are dealing with a mixed tumor. It is generally believed that the tumors of this type that show a preponderance of epithelium are more apt to recur. This is the usual history of a mixed tumor of the parotid; namely, frequent recurrences with a tendency to invade surrounding structures, but not to metastasize. True carcinomas occasionally occur in the salivary glands, but these are rare and characterized by rapid growth and metastases.

DR. TENEN: One of the most complete studies of mixed tumors of the salivary glands was that reported by McFarland (Surg., Gynec. and Obst., 63:457:1936) in a follow-up study of a large series of cases. In 301 cases, he found 278 occurring in the parotid, twenty-two in the submaxillary gland and one in the sublingual gland. The largest tumor found when left undisturbed weighed 26 pounds. Recurrences were noted as long as forty-seven years after removal. One case had seventeen recurrences in twenty-three years. McFarland came to the surprising conclusion that the smaller the tumor, the more likely it was to recur. Hence, he recommended waiting until the tumor approached the size of a lemon before it was removed. He called this letting the tumor become ripe.

(Continued on Page 819)

HISTORY OF MEDICINE IN MINNESOTA

PIONEER PHYSICIANS OF MARTIN COUNTY PRIOR TO 1900

By ROSCOE C. HUNT, M.D.

Fairmont, Minnesota

THE early history of Martin County is similar to that of other western settlements. Homesteads along the Blue Earth River had been taken, and venturing from there a few hard settlers crossed the prairie westward and took permanent claims along the wooded banks of the lakes in Martin County. A settlement was made at the Center Chain Lakes, in the southern part of the county, then called Chanyaska. Another was on the lakes where Fairmont now lies. In 1857 Elisha Banks Hall established his home in the timber on the east bank of the beautiful lake which bears his name. William Budd soon afterward settled on the shore of the adjoining lake north which in turn bears his name.

Although the details of medical practice in Martin County prior to and through Civil War days are extremely vague and indefinite, there are records of certain physicians having lived here. It is known that some carried the title of "doctor" who had little or no medical education, but who, as adventurous spirits, gave what medical services they could to those who had no better care.

Although definite dates are hard to find, many things are known about the lives of these early physicians.¹ There were a few who are remembered mainly because of their bad habits, but most have left behind them records of great services rendered to the community under the most trying conditions. As one reads the meager accounts of their activities and hears by word of mouth of their characters, one is impressed greatly by the devotion, skill, honesty, and physical endurance of these pioneers. A man's ability must be measured by what he is able to do under the conditions in which he works. With this as a standard, who can say that these men were in any degree inferior to their confreres who practiced in settled communities where every facility for scientific practice existed?

Among the earliest settlers there came to Center Chain a Dr. Shafer,^{1,2} in 1858. He staked a claim on a strip of land between North and South Silver Lakes, just above the Iowa Line and adjoining Iowa Lake on the south. Here he had his homestead and built a log cabin which still is preserved (1942) on the original site. There is little known about him except that for several years he was the only physician west of the Blue Earth River and that he practiced for at least ten years. That he probably was not a skillful physician is indicated by the record that on one occasion when a number of persons had frozen their hands and feet in a blizzard it was necessary to call a physician from Blue Earth to perform the amputations. The last note available on Dr. Shafer is a paragraph in the *Martin County Sentinel* of March 19, 1875, in which it was stated that Dr. Shafer was seriously ill at his home in Center Chain.

Dr. McDuff¹ lived in Tenhassen, at least from 1862 to 1865. Both of these dates are of record, the latter being the year of his appointment as "country doctor to the poor" by the county commissioners.

Dr. Denton is shown by the records to have been appointed county physician in 1865. There seems to be no other record of him available.

Dr. Orville Paterson Chubb^{1,2,3,4,15} was the first practitioner of known medical ability to establish residence in the community. He was born in Wayne County, Michigan, in 1830. He was graduated from Wesleyan College at Leone, Michigan, near Ann Arbor, and subsequently was graduated from a medical school in Cincinnati, possibly Cincinnati University. Throughout the Civil War he served as a captain in the Medical Corps of the 5th Michigan Regiment.

In the spring of 1865, with General Cutcheon, Colonel Lonsberry and other officers of the Regiment, he came to Martin County to take up land under the Soldiers' Filing Law. After filing claims these men returned to their army service, which was soon to be terminated. In the fall of 1865 Dr. Chubb and Colonel Lonsberry returned to Martin County, driving a flock of sheep overland.

At various times during his stay in the county Dr. Chubb owned considerable property. He was a man of ability in many lines. As a surveyor he laid out the townsite of Fairmont, platted the first cemetery and also the first fair grounds, and located a great many claims for settlers. He constructed bridges across creeks and rivers in the county. At various places he examined clay and by Buffalo Lake, north of Fairmont, he found some that was suitable for making brick. Here he built a kiln, and the brick he made were used for several buildings. One of these structures, which still stands (1942) he built for his home, and in it he ran a hotel for several years. He stocked and managed the first drug store in Fairmont. He built one of the first sawmills in the county on the creek north of Wilmont Lake, and with another early settler, Alpha D. Cadwell, operated a grist mill where flour first was made in the county. The site of the mill was on Center Creek at the outlet of George Lake. Both mills ran by waterpower. For some time Dr. Chubb published a newspaper. He was a charter member of the Chain Lakes Masonic Lodge.

Dr. Chubb was a very gentle and quiet man. His experience in the Civil War, with its attendant suffering and death, sickened him of contact with illness and pain, and he did not intend to continue medical practice on his return to civil life. However, as there was no other physician in the community, he willingly and skillfully gave medical service to all who asked it, until Dr. David Winslow Hunt arrived, in 1871. He then discontinued practice and never resumed it.

In 1873 the community became too well settled to suit Dr. Chubb and his restlessness took him onto the frontiers of Kansas, Nebraska and other western states. Finally he reached California, where he lived many years. His death occurred in Michigan in 1894. The body was brought to Fairmont, where it rests in Lakeside Cemetery.

David Winslow Hunt^{1,3,7,13,17} was the first physician permanently to locate in Fairmont for the practice of medicine. He was born in 1845 in Mason, New Hampshire, and was the older of two sons, both physicians, of Dr. Nehemiah A. Hunt, a "circuit riding" physician of Blue Earth and Faribault Counties in the early sixties. He entered the Union Army in 1862 at the age of seventeen years and served until near the end of the war. He spent some time in a Confederate prison. During his service he received some slight wounds and in the spring of 1865, after long confinement in a hospital, he was discharged and returned to his home. Although after many months he regained his health, some disabilities, the result of his injuries, followed him throughout his life. After his return to active pursuits he resumed his education, taught school in Vernon Center in 1868 and 1869, and was graduated from the Medical School of the University of Michigan, at Ann Arbor, in 1871. This same year he established his residence in Fairmont, where he practiced thirteen years.

Dr. Hunt was a mild-mannered, likeable man of good medical ability. He did not affect the beard that most physicians wore in those days but had a long, thick mustache. It is probable that he performed the first surgical operations of any importance in the county. In the year 1874, he performed a "cutting" operation for the cure of hernia on a settler, John Rooney,⁸ who lived on a claim near St. James; the procedure was carried out in the patient's log cabin. There is a record of an amputation of both feet which was performed under comparable conditions, in a basement under a log cabin.

The *Martin County Sentinel*² in 1875 stated: "Dr. Hunt went to Saint Paul to attend a State Medical Society. He will be gone about a week and in the meantime people had better refrain from getting sick." He was the only physician in the community at that time. The *Sentinel* later stated that Dr. Hunt owned and operated a drug store.

In the issue of the *Sentinel*² for January 1, 1875, there appeared the following item:

"A runaway. Dr. Hunt's spirited team got the start of him last Sunday night while he was returning from visiting patients and indulged in a runaway which would have done credit to a much larger town than Fairmont. Our reporter was unable to follow the team in all its ramsidulations but we learned that the doctor was thrown from the buggy—the buggy broken in many pieces—one of the horses seriously injured and the buggy badly mutilated."

In 1882 Dr. Hunt found that he was unable to stand the rigors of the climate, turned his practice over to his brother, Dr. F. N. Hunt, and moved to California. He practiced in Anaheim, Redlands, and then for many years in Glendale. During these years he invested all of his income in various speculations: orange orchards, walnut groves, oil wells, and so forth, and he always lost. Some of the land he owned on Signal Hill, Long Beach, later made millionaires of a good many people.

Dr. Hunt died⁹ in 1922 at the Soldiers' Home in Sawtell.

Dr. Ammi Lander Bixby^{3,4,5,14,16} was born April 21, 1856, on the farm his father had taken as a homestead on the east shore of Iowa Lake a few miles south of the Minnesota line. He spent his boyhood there and attended country school. His early training as a physician was obtained by study with a physician at Estherville, Iowa, and soon afterward, about 1878, he started practice at Sherburn, or as he used to say, "hung out his shingle." He was the first physician in Sherburn, a small frontier town where money was scarce. In 1878, he married a girl from his home neighborhood to whom he always lovingly referred as "Mollie."

In 1879, Dr. Bixby moved to North Platte, Nebraska, where he practiced medicine for two years. After a short interval spent in newspaper work at Swan Lake, Iowa, he attended Rush Medical College; he did not finish the course, but left to return to the newspaper field. He worked in various newspaper offices and became a writer of human-interest stories, mostly in poetical style. For many years, from August 24, 1892, to December 24, 1934, the day of his death, he wrote the column "Driftwood" in the *Nebraska State Journal*.

His writings alternated between pathos and humor. He was much sought after as a speaker and gave many lectures throughout the West. His humor was chiefly droll, his talks and writings interspersed with stories and sketches of human interest.

For many years Dr. Bixby made an annual trip to Martin County in order to

attend the meeting of the historical society. At such meetings he was at his best. He used to refer to his "medical practice" in humorous terms. He said that the only apparent good net result of his practice at Sherburn was the establishment of a cemetery—that it had never been needed before because the people were so healthy; that at these meetings he saw many faces which would not have been present, he was sure, had he continued practice.

As a type of his humorous writings, there is quoted here a set of verses which he wrote after the football team of the University of Minnesota had beaten the team from the University of Nebraska:

We are feeling rather lame,
 Minnesota,
 And dejected since the game,
 Minnesota.
 'Twas a most unequal war,
 And our brave boys couldn't score
 Against lunkers six-foot-four,
 Minnesota.

When we strove to buck your line,
 Minnesota,
 When we gave the mystic sign,
 Minnesota,
 We could see you had us beat,
 For your men just spread their feet
 And it blocked the way complete,
 Minnesota.

Trot out men of decent size,
 Minnesota.
 Not such great, ungainly guys,
 Minnesota.
 Average mortals can't compete
 In the game and hope to beat
 Freaks who run to neck and feet,
 Minnesota.

The following poem is an example of the pathos which ran through many of his writings:

Only dreaming—nothing more—
 Back again so many years,
 Herding sheep—'twas when the war
 Filled the land with blood and tears.

Just a little boy again,
 Chasing sheep with brother John
 (Both of us are grown-up men
 And the years creep on and on).

But I dreamt with strange delight
 Of the scenes of long ago—
 There the woodland to our right,
 There the cherry grove below.

There the schoolhouse by the lane,
 Where I learned my A B C's;
 There the clearing where the grain
 Nodded to the summer breeze.

There the happy childhood home,
 There the sheepshed long and wide,
 There the creek that tossed its foam
 'Gainst the rocks on either side.

In my dream I saw it all,
 Lived my childhood hours in one,
 Heard the voice of Father call,
 "It is daylight—come, my son!"

O'er his grave the rain and snow
 Many years have fallen deep,
 And I only see him now—
 Only hear him in my sleep.

And the old home doesn't seem
 As it did in other years—
 Only when I sleep and dream,
 Dreams of joy to wake in tears.

When upon the bed of death
 I, at last, am called to lie,
 And my slowly ebbing breath
 Comes with labored sob and sigh,

I can in my pain rejoice
 That my last day's work is done
 If I hear my father's voice,
 "It is daylight—come, my son!"

Dr. Malcolm James Farrish^{2,13,19} was born in Rockwood, Ontario, of Scottish parents, in 1864. His elementary education was obtained at Rockwood Academy. Four years later he was graduated from Toronto University and in 1890 from Trinity Medical School. After completing a year of internship in the Minneapolis General Hospital he practiced one year in Minneapolis. After this he spent one year on the Range. In 1892 he took up residence in Sherburn.

Dr. Farrish having had what, for those days, was a most thorough medical education, was known as a brilliant physician and surgeon, and it was unusual for one of his ability to settle in a little village of a few hundred inhabitants. His practice soon extended into distant localities, however, and he had one of the the most extensive practices in the southern part of the state. The first major surgical operations in the section were done by him, in homes and later in the hospital which he built.

He held many civic offices and was a lifelong Democrat without compromise. As such he attended state conventions and was a delegate to one national convention. Dr. Farrish was much gifted along literary lines also and wrote and spoke with ability and originality. His ready wit and fund of stories made him the center of any group in which he happened to be.

In 1902, Dr. Robert Farrish, a younger brother, after an internship at the Mayo Clinic joined him and together they carried on a large practice.

In 1915, at the early age of fifty-one years, Dr. Malcolm James Farrish died at his home in Sherburn. His wife and two children, Charlotte and Dr. Robert, Jr., survive.

Henry Nickey Rice^{2,3,4,11,12,13,23} was born in Whitley County, Indiana, near Fort Wayne, September 2, 1842, the second son of Daniel B. Rice and Rose Ann Nickey Rice. At the age of eighteen years, in 1862, he joined Company B, 74th Indiana Regiment of Volunteer Infantry. He was wounded in the battle of Lovejoy Station, he marched with Sherman to the sea, and he spent a short time in Libby Prison. He served until 1865, when he returned to his home in Indiana. After his return he taught school one year. In 1866 he was married to Sarah Ellen Reed and in the same year brought his wife to East Chain, Martin County, where he joined his father in farming a homestead and in running a store.

In the *Martin County Sentinel* of October 16, 1874, appeared an item that read as follows: "Messrs. Henry Rice and Albert J. Franklin start for Keokuk, Iowa, in a short time where they propose attending a course of medical and scientific lectures. These gentlemen for the past two years have been studying with that renowned and successful practitioner, Dr. Winch of Blue Earth. That they will prove worthy and efficient disciples of Esculapius we have not the least doubt."

The next notice, in April, 1875, stated that Dr. Rice had opened an office in Fairmont. In 1885, Dr. Rice was graduated from Rush Medical College, Chicago.

Dr. Rice was a tall, slender man with a long, black beard. He always wore a long black coat and usually a tall black silk hat. Sitting upright in an open buckboard as his horses dashed through the main street, he was an impressive figure. He felt that his was an honorable profession and he expected the deference due him. Old settlers still remember him as a doctor with a real professional bearing. He carried on a successful practice and accumulated considerable property. He took an active interest in the Masonic Lodge. That he had civic spirit is evidenced by the fact that he was mayor of Fairmont for eight years; he served one term in the Minnesota Legislature, in 1877.

In 1897, he left Fairmont, removing with Mrs. Rice to Santa Ana, California, where he practiced medicine until 1907; thereafter they made their home in Hollywood. They lived to celebrate, in 1932, their sixty-sixth wedding anniversary.

sary. They had six children and twenty grandchildren. One daughter, Rose, wife of Mr. Edward J. Edwards who has been a druggist in Fairmont for more than sixty years, still lives in that city.

Dr. Rice died in Covina, California, in 1935.

Dr. Ferdinand N. Hunt^{2,3,4,13} was born in Sterling County, Illinois, in September, 1857, the son of Nehemiah A. Hunt, a pioneer physician of Blue Earth County. In 1863, the family came by oxtteams and covered wagons to Minnesota and settled on a claim at Lura Lake in the southern part of Blue Earth County. Ferdinand attended Mankato High School and completed two years at Carleton College. He then taught three years as principal of the Fairmont schools. Before he came to Fairmont several teachers had been thrown out by the boys and the contract he signed with the board provided that he must "stay in the school building" or he would get no salary. He stayed in. In 1880, he entered St. Louis Medical College. He was graduated in 1883 and settled in Fairmont, to take over the practice of his brother, David Winslow Hunt, who had broken down in health. Dr. F. N. Hunt practiced in Fairmont for ten years, during which time he went through the hardest of experiences on the prairies. He was a man very active and fortunately of remarkable health and strength. His trips extended fifty and sixty miles westward across the prairie.

Dr. Hunt was a great lover of horses and always had the best he could find. He brought in an imported Cleveland Bay, "Lord Newsom," but although this horse was of fine coach type his progeny did not have the stamina to hold up under hard use. A little Morgan horse, "Billy Harlow," produced wonderful horses that doctors all over the southern part of the state tried to get. They were invariably coal black, with a star in the forehead, very handsome and spirited, gentle, and tough. Dr. Hunt kept a good many of these horses. He had one team of Morgans that trotted to the pole in less than three minutes. He always said that his teams took a slow trot and never stopped, up or down hill, no matter what the distance, and that he never injured or winded a horse. Every horse in the stable, and there were always from five to eight, had to be curried night and morning. No mud was ever left on over night. After a drive in warm weather, the horse's head and the neck under the collar were always washed off. Horses in the winter were kept well blanketed day and night except when under the harness and were fed all the oats and hay they would eat. If there was a hobby that Dr. Hunt and most early physicians had, it was that of owning fine horses. With these faithful helpers, physicians spent many long hours, and to them they often trusted their lives. In storms and on dark nights it was the usual thing for the doctor to give the horses the rein, and they seldom failed to find their way across the prairies and to get home safely.

In 1893, Dr. Hunt sold his practice to W. J. Richardson and removed to Blue Earth where he spent twenty-one years. In 1914, with his son, Dr. Roscoe C. Hunt, he returned to Fairmont where he established the Fairmont Hospital. He confined his practice largely to surgery and was active until a year before his death. In February, 1934, he fell on the ice, receiving a head injury from which he died after two weeks.

In 1882, Dr. Hunt was married to Ida Lenore Cadwell, daughter of Alpha D. Cadwell, pioneer merchant of Fairmont. There were two sons, Roscoe C., of Fairmont, and Rollo F., a lawyer in Duluth. Dr. Hunt never was in politics, but he did at times serve on civic boards and for a good many years on the State Board of Health. He practiced more than fifty years in Martin and Faribault Counties. His widow survives (1942).

Dr. George Rising Harnden^{1,3,20,24,25} was born near Barrington, Illinois, April 14, 1839, the oldest son of Joshua S. Harnden, an old-time whaler. He attended the country school in the community. In 1873, George and his two brothers, Wells and Charles, drove to Minnesota in covered wagons. The three brothers homesteaded claims east of Sherburn, Martin County, with which old timers are familiar.

While the family was still in Illinois, George Harnden's wife was in poor health much of the time, so that the family physician prepared a case of simple remedies for Mr. Harnden to use for her and gave him a medical book to study. This was the start of his medical study and after settling in Minnesota he gave medical care to neighbors and others needing it. There were medical practice laws, however, which were interfering with the continuance of this practice, and he decided to qualify himself for a medical license. His wife died suddenly in 1881 from blood poisoning caused by the bite of her driving horse. Mr. Harnden in that year returned to Illinois and studied at Wheaton College and at the Homeopathic Medical School of Chicago, receiving a diploma from the latter school in 1884.

After his graduation he returned to Sherburn, Minnesota, and commenced his medical practice, which continued until 1902 when he moved to Oklahoma. He was not satisfied there and returned to Sherburn after a year, to resume practice to a greater or less extent until 1913. In that year he went to Stillwater, Oklahoma, where he died May 25, 1920, from cerebral hemorrhage.

At the time of the Great Chicago Fire, in 1870, George Harnden was driving a milk wagon in the city. He was one of the first to re-enter the city in the morning after the fire and he recalled that the bricks were so hot that the horse walked gingerly. In his frontier practice Dr. Harnden went through the usual experiences in storms on the prairie. He was known as a very charitable man who did much for people, rich or poor. He organized and faithfully supported the Congregational Church in Sherburn, and for years was a prominent and useful citizen of the community.

His first marriage was in 1861 to Frances E. Meachem. To them were born a son, Florus David, and a daughter, Elizabeth Frances. As stated previously, his wife died in 1881.

After returning to practice subsequent to his graduation from medical school, Dr. Harnden was married, September 22, 1885, to Alice C. Reynolds. To them were born three children, Myra A., Merrill DeWitt, and Millard George.

Dr. George R. Harnden^{13,20} was the son of early residents of Martin County. His license to practice was issued by the State Medical Examining Board on December 3, 1883, and it was filed by the Martin County Clerk of Court on the next day, December 4, 1883. Dr. Harnden commenced practice at once in the village of Sherburn, which had several hundred inhabitants, and continued there until about 1900. He later entered practice in Oklahoma, where he died.

(To be continued in November issue)

President's Letter

MEDICAL EDUCATION IN WARTIME

What are the obligations and what should be the attitude of the members of the State Medical Association with respect to medical education in time of war? The following comments on this question are offered for your consideration.

I think it can safely be said that military service of bona fide premedical and medical students who are maintaining good grades will be deferred until after their internship. But the difficulties of supplying adequate instruction for our medical students are very real. Members of faculties who are less than forty-five years of age and have been declared essential are under the constant pressure of embarrassing situations. Their colleagues and members of their communities not infrequently wonder why they have not received commissions. They should have some recognition in the war work—some emblem which conspicuously indicates that they have been declared essential at home—or they should be commissioned and assigned to the faculty as necessary men. There is not a sufficient number of older men who are qualified to teach. A certain proportion of younger men is necessary to every faculty.

Research necessarily will be curtailed but we should do our best to encourage those who are incapacitated for military service and those who are more than forty-five years of age to continue their productive work. War is destructive of many elements of our culture, and we must maintain, if possible, a foundation for future reconstruction.

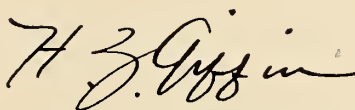
Graduate education will suffer. Fewer men will be able to accept fellowships and study as specialists. This is a situation which will affect the future but the demands of the military services make it impossible to declare many graduate students essential.

The meetings of most national medical societies will be canceled because of travel, the time required for attendance, and the extra load on every individual physician. In some instances reports of papers probably will be supplied in abstract to the members by mail, and the officers only will meet to conduct business. An entirely different situation exists, however, with respect to state, district and county societies. Even with gasoline rationing most physicians will have a supply liberal enough to attend meetings near home, and one-day meetings will require very little time. Consequently, it would seem wise to encourage monthly meetings of component and county societies. There should be no difficulty with programs for these meetings if the president of the local society will conduct a round-table type of discussion based on the packet of the month which is distributed by the State Medical Association. A digest of the packet can first be presented and the meeting opened for general discussion. These packets will be on timely subjects of interest to everyone. Set programs can be arranged for regional societies like the Southern Minnesota and Northern Minnesota Medical Associations, and for the State meeting.

Every encouragement should be given to those conducting courses at the Center for Continuation Study. By attendance whenever possible, a physician can combine a short vacation with profitable instruction. The work of the Center for Continuation Study is an outstanding achievement of national importance. We should in every way show our appreciation of the accomplishments of Dr. W. A. O'Brien and his colleagues.

In addition, I would like to see the staff of every hospital in the state arrange an occasional clinic day for physicians in nearby communities. Very interesting discussions probably would develop and the quality of the work of the staff itself would be improved.

In such simple yet effective ways can postgraduate education and a high standard of medical care be maintained during this tragic period of our history.



President, Minnesota State Medical Association

EDITORIAL

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BUSINESS MANAGER
J. R. BRUCE

Volume 25 OCTOBER, 1942 Number 10

TUBERCULOSIS AMONG MEXICANS

The Tuberculosis Abstract for October, issued
by the National Tuberculosis Association, deals
with the incidence of tuberculosis among the
Mexicans in our country. The incidence of tu-
berculosis in white people in our country in 1940
was 36 per 100,000 population. Among the
Negro race the incidence is about three and a
half times as great. The incidence in the Mexi-
can race in this country is said to lie somewhere
between the two and it is brought out that it is
higher among Mexicans who have come north
than among those who have remained in the
southern states.

Minnesota has a considerable Mexican popula-

tion. Minnesota physicians have known for years
that the incidence of tuberculosis in Mexicans in
this state is high, so much so that an infant
Mexican admitted to a municipal hospital in the
Twin Cities with symptoms of meningitis is most
likely to be diagnosed as miliary tuberculosis. It
would be interesting and valuable to make a
survey of the incidence of tuberculosis among the
Mexicans in this state and to do something about
the active cases found.

CORONAR HEART CASES

DEATHS from heart diseases are increasing
at an appalling rate. As an instance, view
the statistics of the Hennepin County Coroner's
office. This is true not merely in Hennepin
County, but all over the country. Inasmuch as
the coroner's office deals only with sudden, unex-
pected deaths where the victim has not been
under a doctor's care, this means that many times
the number seen by the coroner die from heart
disease. With only eight months of 1942 gone
there have already been about 230 deaths among
those investigated by the coroner's office in Min-
neapolis, due to this cause. Last year there were
319 coroner heart cases, or 36 per cent of the
cases investigated. In 1925 there were 165 cases,
or 21 per cent.

The number of heart deaths seems to reflect
the tensify of the times. In 1929 while prosperity
reigned there were 145 heart deaths or 20 per
cent. After the crash the 1930 records show
190 deaths; and the depression of 1933 sent the
figure up to 226. Since then it has increased
steadily.

Coronary sclerosis is the dominant type of
heart disease causing sudden death. To some ex-
tent it is an occupational ailment. Businessmen
and others who go in for heavy thinking and
worrying are the most frequent victims. Con-
versely, transients and others who do not work
because they prefer to be idle, are seldom coroner
heart casualties. Most victims do not die in
the midst of activity, indicating that it is not the
immediate situation which causes death, but the
background of emotional strain.

EDITORIAL

The following deaths from heart disease in Hennepin County are recorded by the coroner's office of Hennepin County for the period of 1925 to 1942:

Year	Heart Deaths	Total Cases for Year	Per Cent to Total
1925	165	770	21
1926	163	723	23
1927	184	690	27
1928	177	731	24
1929	145	773	20
1930	190	786	24
1931	189	813	23
1932	198	777	25
1933	226	824	27
1934	236	803	29
1935	223	811	28
1936	266	922	29
1937	263	790	33
1938	263	797	33
1939	290	824	35
1940	303	856	35
1941	319	886	36
1942	230	545	42
(incl. Aug.)	(approx.)		

G. W. Callerstrom, M.D.
Deputy Coroner, Hennepin County.

MEDICAL SOCIETY DUES

By next year approximately one-third of the active members of the Minnesota State Medical Association and its component county and district societies will be in military service. The question of whether to meet the reduction in income by curtailing the activities of the association, by making deep inroads into the reserve fund, or by making an assessment was thoroughly discussed by the delegates at the Duluth meeting last June. The decision was the unanimous approval of a \$5.00 assessment.

The component county and district societies are faced with the same reduction in income. Members in the service have rightly had their dues suspended for the duration, or refunded, or both.

In the case of most county societies the dues

are determined according to the cost of the society activities. Where the overhead is at an irreducible minimum, the society faces the alternative of going in the red and drawing on reserves (if any) or leveling an assessment.

County and state assessments of this sort amount to sharing the dues of members in service. That is the least we stay-at-homes can do for our confreres in service, even if our practices may not show some increase because of the thinned ranks at home.

It is well for state associations and county societies to keep the home fires burning and not to reduce essential activities nor to run behind financially with the intention of making up deficits when the boys come home.

QUININE AND QUINIDINE

Among the many adjustments we have to make as a result of the war is that mild one in connection with quinine and quinidine. The regulation scarcely deserves mention except in the interest of harmony between the pharmaceutical and medical professions.

The Health Supplies Branch of the War Production Board restricted the sale of quinine and quinidine some time ago for use in the treatment of malaria and heart disease respectively on account of its limited source of supply and the great demand for quinine by the armed forces, exempting prior to June 19, 1942, small stocks already in the hands of the druggists. Since June 19 all quinine and quinidine is so restricted.

Compounds of quinine already prepared by April 4, 1942, are permitted to be sold but we understand that such stocks are about depleted. The only exception to the prohibition of manufacturing compounds in the future is in the case of quinine and urea hydrochloride for hypodermic use or in quinine hydrochloride and urethane.

When a druggist buys quinine or quinidine he must certify that the quinine will be used only for malaria or the quinidine for heart disease. Obviously the only way he can carry out his part of the agreement when he receives a prescription for either of the drugs is the indication on the prescription by the physician of the purpose for which it is prescribed. Some physicians may argue that the statement of the indication on the prescription might be construed as a betrayal of professional confidence. In the interest of co-

operation with the druggists who are affected by this necessary restriction this point can be overlooked by physicians.

The practical result of this limitation of the use of quinine and its derivatives is the elimination of the old tonic, Elixir Iron Quinine and Strychnine and certain coryza tablets. The resultant suffering will not be great. The counter sale of quinine for its questionable abortive activity should also be eliminated. Some physicians may be inconvenienced from an increased demand for prescriptions which would have to be falsely certified for this use.

Physicians are urged to cooperate with the pharmacists in carrying out the regulation in regard to these two drugs in the common interest of the successful prosecution of the war.

COMMUNITY AND WAR CHESTS

This month, Minneapolis and Saint Paul, along with many other American cities, put on their yearly Community Chest campaigns. Although America has by no means a monopoly among nations on charity, the Community Chest is quite a testimony to the Christian civilization of our country. Individual charity to a less fortunate neighbor has been in existence since the time of Adam and has the virtue of the giver along with the gift. It would be too bad if Community Chest giving were to be substituted for this individual kind of charity. On the other hand Community Chest giving has the advantage in that joint action can often accomplish results unattainable by individual effort.

Just as organization of charity giving by means of a chest prevents neglect of certain agencies and undue favoritism to others, it affords an economy in the effort of collection and enables the contributor to aid many worth-while activities by one contribution. The existence of a Community Chest greatly facilitates the budgeting of contributions.

During the past year or two numerous additional agencies have been making requests for contributions to relieve war sufferers. How much one should give to British, Chinese, Greek, Polish, Dutch or Russian relief has been a question difficult for many to answer. So in many American cities, Minneapolis and Saint Paul included, a War Chest has been added to the Community Chest. Quotas for each relief fund have been determined for each state and the larger

cities. This ups the goal for the combined Community Fund and War Chest in Minneapolis from \$1,367,195 to \$2,303,564 and in Saint Paul from \$730,000 to \$1,100,000, a very substantial increase.

In spite of mounting taxes and lease-lend appropriations the heart of America goes out to those less fortunate in our own land and especially to those so much more unfortunate in foreign lands. Community Chest allocations to foreign relief agencies comprise only a portion of America's total contributions. The sum total of gifts from individuals doubtless surpasses chest contributions.

The evidence of human compassion portrayed by Community Chests is reassuring in a world where there is so much evidence of hate and barbarism.

WAR DEPARTMENT

Services of Supply

Office of the Surgeon General Washington

August 22, 1942

The Surgeon General of the Army published detailed information concerning policies governing the initial appointment of physicians as medical officers on April 23, 1942. Necessary changes are given wide publicity, at his request, in order that the individual applicants, and all concerned in the procurement of medical officers, may know the status of such appointments.

The current military program provides for a definite number of position vacancies in the different grades. The number of such positions must necessarily determine the promotion of officers already on duty, and, in addition, the appointment of new officers from civilian life. Such appointments are limited to qualified physicians required to fill the position vacancies for which no equally well-qualified medical officers are available. Such positions calling for an increase in grade should be filled by promotion of those already in the service, in so far as possible, and not by new appointments.

If this policy is followed, it would definitely penalize a large number of well-qualified Lieutenants and Captains already on duty by blocking their promotions which have been earned by hard work. In view of these facts, it has been deemed necessary to raise the standards of training and experience for appointment in grades above that of First Lieutenant.

With this in view, The General has announced the following policy which will govern action to be taken on all applications after September 15, 1942:

All appointments will be recommended in the grade of First Lieutenant with the following exceptions:

Captain.

1. Eligible applicants between the ages of 37 and 45 will be considered for appointment in the grade of Captain by reason of their age and general unclassified medical training and experience.

2. Below the age of 37 and ABOVE the age of 32, CONSIDERATION for appointment in the grade of Captain will be given to applicants who meet all of the following minimum requirements:

- a. Graduation from an approved medical school.
- b. Internship of not less than one year, preferably of the rotating type.
- c. Special training consisting of 3 years' residency in a recognized specialty.
- d. An additional period of not less than 2 years of study and/or practice limited to the specialty.

3. Eligible applicants who previously held commissions in the grade of Captain in the Medical Corps, Regular Army, National Guard of the United States, or Officers Reserve Corps *may be considered* for appointment in that grade provided they have not passed the age of 45 years.

Major.

1. Eligible applicants between the ages of 37 and 55 MAY BE CONSIDERED for appointment under the following conditions:

- a. Graduation from an approved school.
- b. Internship of not less than one year, preferably of the rotating type.
- c. Special training consisting of 3 years' residency in a recognized specialty.
- d. An additional period of not less than 7 years of study and/or practice limited to the specialty.
- e. The existence of appropriate position vacancies.
- f. Additional training of a special nature of value to the military service, in lieu of the above.

2. Applicants previously commissioned as Majors in the Medical Corps (Regular Army, National Guard of the United States, or Officers Reserve Corps) whose training and experience qualify them for appropriate assignments may be CONSIDERED for appointment in the grade of Major provided they have not passed the age of 55.

Lieutenant Colonel and Colonel.

In view of the small number of assignment vacancies for individuals of such grade, and the large number of Reserve Officers of these grades who are being called to duty, such appointments will be limited. Whenever possible, promotion of qualified officers on duty will be utilized to fill the position vacancies.

Much misunderstanding has arisen concerning recognition by Specialty Boards and membership in specialty groups. It will be noted that mention is not made of these in the preceding paragraphs. This is due to the variation in requirements of the different Boards and organizations. Membership and recognition are definite factors in determining the professional background of the individual, but are NOT the deciding factors, as so many physicians have been led to believe.

The action of the Grading Board, established by the

Surgeon General in his office, is final in tendering initial appointments. Proper consideration must be given such factors as age, position vacancies, the functions of command, and original assignments. All questionable initial grades are decided by this Board. Due to the lack of time, no reconsideration can be given.

There are in the age group 24-45 more than a sufficient number of eligible, qualified physicians to meet the Medical Department requirements. It is upon this age group that the Congress has imposed a definite obligation of military service through the medium of the Selective Service Act. The physicians in this group are ones needed now for active duty. The requirements are immediate and imperative. Applicants beyond 45 years may be considered for appointment only if they possess special qualifications for assignment to positions appropriate to the grade of *Major* or above.

CLINICAL-PATHOLOGICAL CONFERENCE

(Continued from Page 807)

INTERN: What is the logic of waiting until the tumor is the size of a lemon before attempting to remove it?

DR. HERTZOG: McFarland's idea was that the tumor became better encapsulated and was easier to remove with less chance of recurrence. However, I do not believe the majority of surgeons think this is true. Wood reported 55 per cent cured by the first operation and 30 per cent more by subsequent operations. I would like to ask Dr. Gratzek to say something about the effects of irradiation on these tumors.

DR. GRATZEK: In treating these cases pre-operatively, and in those patients who refuse operation, it is necessary to do it very vigorously. Parotid tumors have to be treated to the point of skin tolerance, as they will not respond to radon implants. I have seen regressions after deep x-ray therapy given to the point of skin tolerance.

DR. PEPPARD: Naturally, I have not had considerable experience with these tumors but have made the diagnosis on several occasions. There are several points that I would like to bring up aside from those pertinent to the tumor. It is rather striking in hearing the history of this case that nothing whatever was said about anything except the fracture and the tumor. I have seen it happen so often that an old patient with an obvious lesion like this tumor lies around for a long time and finally expires. After we learn of the autopsy findings, we feel sorry that we did not have a note regarding some particular physical finding. These elderly patients are storehouses of pathological information and clinically, by neglecting them, we pass up an opportunity to sharpen our wits and increase our clinical skill. The implication was given that this patient died of starvation because her weight dropped to 80 pounds. However, at autopsy one lung weighed 800 grams and showed considerable pneumonia, and a pulmonary embolus was found. I think the correct diagnosis of pulmonary embolism varies from 33 to 75 per cent. We should try to improve our batting average. However, we are not going to hit 100 per cent on the diagnosis because there is frequently no clue that a patient has had pulmonary embolism.

Anatomical Diagnosis: (1) Mixed tumor of parotid; (2) Inanition; (3) Bronchopneumonia; (4) Pulmonary embolism.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

Minnesota State Medical Association

George Earl, M.D., Chairman

BILL FOR GOVERNMENT HOSPITALIZATION INTRODUCED

The long-awaited bill to amend the Social Security Act to include hospitalization has just been introduced into Congress by Congressman Eliot of Massachusetts according to word received from Washington. The bill has been referred to the House Ways and Means Committee.

Inclusion of hospitalization among already established Social Security benefits may appear to many people as a logical step forward in the Social Security program for Americans.

To physicians and hospital executives, especially, but also to all who fear extension of government paternalism into private fields and individual rights, the new bill will call for a great deal of careful consideration before it is adopted.

Medicine Involved

Not only the future of the flourishing system of voluntary hospital insurance is threatened by this measure, but also the great system of private hospitals. Obviously, the private practice of medicine which is intimately bound up in the hospital system is also deeply involved in the matter.

Many pertinent questions should be asked and answered to the satisfaction of the average citizen and of medical and hospital men as well as the politicians and reformers, before the bill is allowed to pass.

Presumably it provides for hospitalization at a fixed per diem rate for a fixed period in exchange for the usual additional Social Security payment by employe, employer and government. Would it result in more and better service than the hospital insurance plan?

What About Philanthropy?

Would it result in elimination of private philanthropy, in the substitution of government support and the inevitable lowering of hospital standards?

South Not Aided

Would it improve the situation in the South which is the only district where hospitalization is a real problem—and where those who might benefit most are unemployed and therefore not eligible to Social Security benefits?

Should the question of government hospitalization be considered at this time and wouldn't it be better for the American people and American hospitals to continue with the present voluntary approach at least until the war is won and various experiments in administrative techniques in voluntary insurance can be judged? These questions must be considered.

Pressure Due

There will be pressure brought to bear in the name of civilian health in wartime to pass this measure. Every effort should be made for a full and free hearing before recommendations are made for its passage.

FOR CO-OPERATION NOW

Letters from physicians already in the service with the Armed Forces frequently convey not only a sense of intense satisfaction because they are doing an essential job, but also a clear realization of the importance to the future of medicine of complete coöperation now with the Procurement and Assignment Service in providing physicians for active duty with the military forces.

The following paragraphs are quoted from a letter written by Lieutenant L. V. Berghs of Owatonna who is training for foreign service in one of the camps in the Southwest.

"Great Conditioner"

"Life in the desert is a great conditioner to say the least. I'm sitting in my tent with but a pair of shorts on and with the temperature about 120 degrees. A nice hot, drying breeze keeps the per-

piration at a minimum. We are being conditioned for desert warfare so that probably means North Africa for me as soon as our unit gets assembled, organized, equipped and trained. This probably will be in two or three months.

"We have a grand bunch of fellows and the powers in Washington did a good job in assembling our unit on paper. We have the correct proportion of surgeons, internists, orthopedists, eye, ear, nose and throat men and GU men. They are a likable group, young and middle-aged, quite gay and 'devil may care.' They have all come out of lucrative practices and fine homes and families. Now that they have burned all their bridges behind them, their attitude is, 'let come what may.' It's a darn good attitude for morale. We're all set to go as far as mental attitude is concerned.

Medical Officers Needed

"The Army is still in desperate need of medical officers. I sincerely believe it is one of the bottlenecks in our war effort. We are not sending troops abroad until they have a full complement of medical officers.

"Now, then, it's up to the medical profession to furnish the officers. The American Medical Association promised to see that the Army gets all the doctors it needs. You will recall that McNutt agreed to give the AMA a chance to do it but also promised, in the event that we fell down on the job, the Government would step in and take things into its own hands. That certainly would be a very deep wedge driven into our profession toward government control which, in plain words, means socialized medicine.

Political Stick

"One may say we are going to get socialized medicine anyway so what's the use of bothering about it. To this, the medical men in the Army say NO emphatically. If the profession behaves correctly now in furnishing men to the Armed Forces without government intervention, then we can dictate what we want after this war is over. There is no doubt but what the Army is going to wield a tremendous political stick after this thing is over and Army medical officers will undoubtedly wield a big stick too, not only in the AMA but also through the Army itself in national policies."

A recent poll of county societies has shown

that Minnesota physicians are responding, but more are needed to complete the state's quota of 918 by January 1, 1943.

NEW COMMITTEE TO STUDY MEDICAL CARE IN MINNESOTA

Certain sections within the Minnesota State Conference of Social Work have brought up the question at intervals for several years of the adequacy of medical care and public health in Minnesota.

A resolution was accordingly passed a year ago at one of the sectional meetings of the conference asking for an immediate study of the medical and public health situation in Minnesota, looking toward the possibility of new provisions for medical service.

The resolution was not adopted by the conference as a whole owing largely to an active effort by representatives of other organizations more directly concerned with medical services than the social welfare group.

These others, including chiefly physicians and hospital association members, had no objection to a study of the medical situation in Minnesota. They did, however, object to such a study carried on by laymen who are presumably unaware either of the problems or possibilities involved.

Representative Committee

Accordingly a substitute action was proposed and accepted by the Conference at its spring meeting providing for a representative committee to study the problem. This committee was to be composed of three representatives from the Minnesota State Medical Association and three each from the Minnesota State Dental Association, the Minnesota Hospital Association and the Conference of Social Work. Dr. George Earl of St. Paul, chairman of the Committee on Medical Economics, Dr. A. W. Adson of Rochester, chairman of the Committee on Sickness Insurance, and Dr. W. A. Coventry of Duluth, chairman of the Committee on Low Income and Indigent Problems were appointed as representatives of the medical association.

Problem Involved

Discussions at the first meeting of the general committee called in September developed nothing definite in the way of a program or immediate plan of action but did impress upon all partici-

pants the tremendous scope and infinite perplexities which their undertaking might involve.

To begin with, there was the fundamental question: Is there actually a problem in Minnesota and if so, where does it specifically lie? To answer that question fully could well involve studies costing thousands of dollars—and the committee has no funds.

Assuming that a question could be solved, moreover, what could such a committee do and where could it start? There is, of course, much pertinent information based upon isolated studies and reliable opinion in the possession of all of the organizations represented. There are even a few isolated studies of an exhaustive nature, such as the study made last year by the United States Public Health Service in Freeborn county. But none of this material has been gathered into comprehensive surveys of the sort that might appeal to professional statisticians..

Objective Uncertain

Other questions pressed upon the committee at this meeting: Would it limit its investigations to the provisions for indigent and marginal income groups? Would it concern itself with the middle-income group whose troubles so much interest the social theorists?

Would it delve into the possibilities of prepaid medical plans or would it push better health education of all classes to take full advantage of existing facilities which are admittedly extensive in Minnesota?

Would it aim at wartime health problems exclusively or would it concern itself with long-range plans for the peace to come?

All of these questions would have to be considered before any effective program could be undertaken.

Education Fundamental

To physicians who have made studies of all these things in their own committees, the basic need is generally regarded as education—education as to facilities and education in hygiene and preventive medicine. Such education obviously must go beyond the information now carried on by means of platform, radio and newspaper programs. It must extend to the secondary schools as well as the colleges in which a smattering of latin verbs and verse forms is still esteemed more highly than a working knowledge of body mechanics and needs.

Education is a fundamental problem which a group of this kind must take into account if its work is to bear fruit.

Will Be Clearing House

In any case, the value of a representative committee of trained professional people is not to be discounted even though its efforts do not result in sweeping overnight reforms in Minnesota. It will undoubtedly prove to be a clearing house for an exchange of ideas which will have a value of its own in the more intelligent and practical handling of the work of each of the organizations represented.

Certainly the physicians will welcome a chance to acquire first-hand the opinion and the information of other welfare bodies in an informal discussion group of this character.

Should Be Concerned with Peace

It is obvious, however, that the medical men, at least, are too busy and hard-pressed by wartime demands to consider any fundamental changes in provisions for medical service in these times, even if such changes are considered desirable by other members of the committee. The studies and conclusions of the committee are therefore far more likely to be of practical significance if they are concerned with health problems of peace.

FOR SERVICE ON THE HOME FRONT

The time is coming soon when the State Committee on Procurement and Assignment may be obliged to direct the distribution of physicians on the home front, so that no community in Minnesota will be without medical service.

Any physician who can be spared now to take over the practice of a man in service is urged to write immediately to the Committee at the State Office, 493 Lowry Medical Arts Building, Saint Paul.

SOURCE OF TUBERCULOSIS INFECTION

The source of the great bulk of infections with tuberculosis is a human carrier with a pulmonary cavity. While the home is probably the place of most childhood and some adult contacts, many primary infections and more reinfections must occur in the place of work. Nurses, physicians and attendants on the sick encounter a real occupational hazard from infection itself and this hazard should be accepted as incidental to the professional life while hospital management should assume the obligation of minimizing opportunities for mass infection.—Saranac Lake Symposium on Tuberculosis in Industry, Saranac Lake, June, 1941.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

J. L. McLeod, Grand Rapids, Chairman

H. B. Allen, Austin
L. S. Arling, Minneapolis
G. L. Berdez, Duluth
F. J. Elias, Duluth

L. W. Foker, Minneapolis
T. A. Lowe, South Saint Paul
L. G. Rigler, Minneapolis
E. E. Scott, Saint Paul

S. E. Sweitzer, Minneapolis
D. D. Turnacliif, Minneapolis
A. E. Wilcox, Minneapolis
H. G. Wood, Rochester

OCCUPATIONAL HEALTH HAZARDS

Keeping the employe healthy is the primary purpose of industrial health supervision. There are many factors involved in attaining this end, not the least of which is the prevention of an accident or illness before it occurs. An effective industrial health program requires close coördination of medical and engineering methods. A physician, therefore, to fill his part in the program and to think properly in terms of prevention must have at least a basic understanding of the general methods of engineering control, and obviously he must have some knowledge of the processes and material used in his plant together with an understanding of health hazards attendant with their use.

The control of an industrial health hazard begins with an evaluation of the degree of danger involved. Many times the danger will be self-evident whereas at other times it may be necessary to evaluate a potential hazard by engineering studies. There is a tendency on the part of the management to forget about occupational disease when medical personnel is available, and thus engineering problems related to health inadvertently fall into the hands of the industrial physician. A physician with some knowledge and appreciation of the methods of control can bring to the attention of the engineering and safety personnel a health hazard which could be subjected to some means of control. The coördination of the medical and engineering services of a plant will do much toward furthering a program for the control of occupational diseases.

Many Methods

There are many ways of controlling hazardous exposures to toxic materials, the most common of which is ventilation. Each method of control, alone or in conjunction with other methods, however, has its definite application in the field of industrial health. There are five general methods for the control of these hazards.

1. The most successful control measure is the *substitution* of a harmless material for one which is toxic, thus eliminating the source of the hazard. The number of opportunities for such substitutions are naturally limited. Changes in the method of processing will likewise often eliminate the source of the hazard.

2. Several methods of control commonly used prevent the dispersion of toxic materials into the atmosphere. *Segregation* of an operation prevents the exposure of workers to a toxic material not produced by their own work. These operations may be carried out in an isolated part of a plant or by a small group of men at a time when most of the workers are gone. Usually these workers need some personal protective device. *Enclosure* of the offensive operation may itself prevent the escape of hazardous material into the atmosphere. The use of *wet methods* has found extensive application in reducing atmospheric dust concentrations associated with certain operations. *Local exhaust ventilation* is very commonly used to prevent the dispersion of toxic materials into the atmosphere when the source of those materials is produced at a fixed location. Such systems must be very carefully designed to give maximum effectiveness.

3. A third general method of control consists of the *dilution* of the contaminated air with fresh air until the concentration of the toxic material no longer constitutes a hazard to the health of the workers. Either positive ventilation, fresh air forced into the room, or negative ventilation, contaminated air exhausted from the room and fresh air drawn in through windows and doors, or a combination of both may be used. This method is frequently used in conjunction with other methods of control.

Personal Protections

4. *Personal protective devices* should be considered only as a second line of defense for continuous exposures. Whenever possible the hazard should be eliminated. The use of respirators, gas masks, oxygen breathing apparatus, and similar respiratory protective devices is especially applicable for emergency use as a protection against infrequent toxic exposures. The use of protective ointments, gloves and suitable clothing, although not strictly engineering control measures for exposures of the skin, are finding wide application.

5. One of the most important, but frequently overlooked, methods for the control of occupational disease is *good housekeeping*. Good housekeeping means

(Continued on Page 826)

In Memoriam

MANUEL BALADO

Word has been received of the death of Dr. Manuel Balado on May 23, 1942. He was formerly a Fellow of the Rockefeller Foundation on duty at the Mayo Foundation. At the time of his death he was chief of the clinics at the Institute of Clinical Surgery, University of Buenos Aires, and also was head of the Neurosurgical Service at Santa Lucia Hospital in Buenos Aires.

Dr. Balado was born in Buenos Aires, Argentina, in 1897. He received the degree of M.D. in 1920 from the National University of Buenos Aires; was an intern at the Clinic Hospital from 1919 to 1921; was assistant in surgery for six months to Professor Jose Arce; and was first assistant in teaching in the Institute of Surgery, Medical School of Buenos Aires, from 1921 to 1924. He entered the Mayo Foundation February 2, 1925, and left May 21, 1926.

Dr. Balado received the degree of *Docente libre* in Surgery in 1933 from the University of Buenos Aires. He was a member of the International Congress of Surgery, the International Congress of Neurology and the *Asociacion Medica Argentina*.

ALBERT H. FAGERSTROM

Dr. Albert Harry Fagerstrom, was born in Minneapolis February 2, 1886. He attended the public schools of Minneapolis and subsequently the University of Minnesota. He was graduated from the Marquette University Medical School in 1912, and was an interne at Swedish Hospital. He subsequently practiced medicine in Minneapolis for twenty-six years. In 1922 he married Miss Grace Rudstrom. He was a member of the Hennepin County Medical Society, Minnesota and American Medical Associations. He was a member of Phi Rho Sigma and an active member of the Zion Lutheran Church. He retired from practice on account of illness in 1939 and moved his place of residence to Clearwater, Florida, where he lived until the time of his death, May 1, 1942. He is survived by his wife and one son, his father and one brother.

DOUGLAS T. ORMOND

Dr. Douglas T. Ormond of Waconia passed away August 13, 1942, at the Abbott Hospital, Minneapolis, at the age of thirty-nine. The cause of his death was septicemia.

Dr. Ormond was born January 5, 1903, in Hegbert township, Swift county. He received his high school instruction at Saint John's University at Collegeville, Minnesota, and his medical degree at the University of Saint Louis in Missouri in 1927. His internship was served at Saint Mary's Hospital in Minneapolis.

After an association of several months with Doctors

Halloran at Jackson, Minnesota, Dr. Ormond went to Waconia in January, 1929.

Dr. Ormond was a member of the Scott-Carver County Medical Society, and the Minnesota State and American Medical Associations. He was also a member of the Waconia Knights of Columbus, the Waconia Hunt Club and was on the staff of Saint Mary's Hospital, Minneapolis. Last year he purchased the Frank J. Effertz home and was remodeling it for a hospital.

A glowing tribute was paid to the place Dr. Ormond had made for himself in his community through his services to the sick and afflicted as a practitioner by the local paper, the *Waconia Patriot*.

Dr. Ormond is survived by his father, John Ormond of Appleton, his sister Mrs. A. F. Fluegel of Morris, and two brothers, James Ormond of Appleton and Roy Ormond of Traverse City, Michigan.

HARRY PARKS RITCHIE

An Appreciation

On September 3, 1942, Minnesota lost one of its most distinguished surgeons in the death of Dr. Harry Parks Ritchie. Born in Wellington, Kansas, March 1, 1873, he came to St. Paul with his parents in 1881 and lived there the rest of his life. There probably are many men who knew Dr. Ritchie better and longer, but there are few who are influenced so much by his kindness, conduct of practice, and personality as the author.

Dr. Ritchie—The Teacher

Most of us had our first contact with Dr. Ritchie as medical students. The first time one saw him in the lecture hall one was impressed by his appearance. He was the medical student's ideal of what a successful surgeon should look like. Here was a dignified, well-groomed man with a goatee and a suggestion of a Van Dyke beard. While he was slender of frame and small in stature, one was never impressed by these qualities. His voice was quiet and he had the habit of molding out the words with gestures of his hands as he talked. One thing everybody noticed about Dr. Ritchie was his hands. They were delicate, graceful, and always well cared for.

His lectures were carefully prepared and to the point, but were of such a specialized nature that I am sure most of us did not obtain so much a comprehensive knowledge of plastic surgery as we did awe and wonder that such marvelous things could be performed. Rarely did he make excursions into fields other than the subject at hand. Other instructors used to love to speak of their exploits in the Spanish-American War or the World War. When Dr. Ritchie was asked why he was so reticent of speaking about his experiences in the Spanish-American War he would say, "Oh, they can do it so much more interestingly than I can; I have to concentrate on giving a good lecture to hold the students' interest!"

Dr. Ritchie was connected with the University of Minnesota in a teaching capacity ever since he was in medical school. While in the medical school, he taught in the department of physiological chemistry where he

was closely associated with Dr. Richard Olding Beard, Professor of Physiology, in the newly formed medical school. He was not much older than the students taking the course. He said the thing that saved him as a teacher was the notes of Professor Russell H. Chittenden, under whom he had studied physiology and physiological chemistry at Yale University.

After graduation from the University of Minnesota Medical School in 1896, he had an internship at the City and County Hospital in St. Paul, which is now known as Ancker Hospital. Then came a year of practice with Drs. A. MacLaren and Theodore F. DeWitt. When the Spanish-American War broke out he volunteered his services and on his return from the Philippines became associated with the Department of Gynecology at the University under Dr. Alexander J. Stone. Also at that time, he and Dr. MacLaren used to give a Thursday morning surgical clinic at St. Luke's Hospital in St. Paul. While this clinic was chiefly an operative clinic, nevertheless Dr. Ritchie found time to try to classify the operative specimens grossly and microscopically. Dr. Ritchie often remarked how proud he was of most of the specimens preserved in glass jars; when Dr. MacLaren would turn the clinic over to him he would parade out the specimens, and try to put some "romance," as he called it, into the discussion.

When the newly formed University Hospital opened in 1912, he was appointed to the surgical staff under Dr. James E. Moore. He always spoke of what a happy and ideal association this first group was; this group had much to do with the excellent esprit de corps that has persisted in the surgical department at the University Hospital throughout the years. Dr. James Moore was Chief and Dr. J. Clark Stewart was Associate Chief of the Surgical Service; Dr. Ritchie, Dr. Arthur Law, and Dr. Earl Hare were on one of the services and Dr. MacLaren, Dr. Arthur Strachauer and Dr. Warren Dennis on the other. There were many cancer cases sent to the University Hospital and it was here that Dr. Ritchie first became interested in plastic surgery. After wide surgical removal of the tumor, serious cosmetic deformities often resulted, so Dr. Ritchie became interested in trying to repair the defects with flaps and skin grafts. Seeing his interest in this work, Dr. Moore relegated to him the repair of cleft palates and harelips, which had been anybody's problem up to this time. It was due to the work of Dr. Ritchie and his associates that plastic surgery has reached such a high level at the University Hospital.

Dr. Ritchie was a clinical professor of surgery from 1937 to 1941, and was made professor emeritus of surgery in 1941. At a testimonial dinner given on June 10, 1941, for Dr. A. R. Colvin, Dr. J. Frank Corbett, and Dr. Ritchie, Dr. Ritchie reviewed his years as a teacher at the University. Very modestly he said that he believed he got more out of the school than the school got out of him. Those of us who had him as a teacher, however, know differently.

Dr. Ritchie—The Surgeon

For years Dr. Ritchie had an operative clinic at the University Hospital on Thursday afternoons for the cases with cleft palates and harelips. Before the

operation he would see the baby and quite characteristically would give it a kiss on the forehead. In the dressing-room he usually discussed what he was going to do and during the operation he would explain the procedure step by step. As an operator, he was deliberate, yet gentle, and never seemed to be in a hurry. I think many of the younger men were surprised to see how well he could thread the eye of a very fine needle even in his later years. I can never remember seeing him disturbed or out of sorts in the operating room. He said that the results of his one "blow-up" in the operating room cured him forever. Years before, he had been working hard and really needed a vacation when one day he was doing a rather difficult case with an inexperienced student nurse as his assistant. Finally Dr. Ritchie spoke to her rather sharply, whereupon the nurse burst into tears. Dr. Ritchie was so distressed about it all that he sent the nurse a five-pound box of candy. He said it was a very expensive precedent, however, because thereafter the other nurses would burst into tears at the slightest provocation and he said he was always sending candy to the operating room. He decided that it would be cheaper to take a vacation.

Dr. Ritchie had a wide surgical practice and many of his patients were referred from surrounding states. His greeting to the patient was quite characteristic: "Well, how are you today? I'm so glad to see you. How have you been lately?" Regardless of how busy he was he always made it a point to make that patient feel as if he were the most important person he had seen that day. Children were particularly fond of him; in fact, one of them was asked in Sunday School why he should be good; the reply was: "So I can grow up and be like Dr. Ritchie!"

Dr. Ritchie had a kind word for everyone. When the conduct of one of the younger men was the subject of censure, he would say: "Oh, he'll straighten out after he grows up," and would change the subject of the conversation. If the person happened to be an older colleague, his only comment would be: "Oh, he knows better. He's just having a brain storm."

At medical meetings, Dr. Ritchie liked an atmosphere of dignity, but thought that the papers and discussions should have an air of informality. He rarely missed a meeting of the Minnesota State Medical Association, the American Surgical Society, the Western Surgical Society, or the Saint Paul Surgical Society. His idea of a surgical society was one in which the membership should be rather general with an especial attempt to include the younger men, while the policies were to be governed by the older members. He often said that a successful surgeon was to be judged not by how much money he made or how big his practice was, but by the esteem in which he was held by his colleagues. Considering these criteria, Dr. Ritchie was eminently a successful surgeon.

Dr. Ritchie—The Man

Dr. Ritchie's life was greatly influenced by his associates. He admired and respected his father, Dr. Parks Ritchie, who had been dean and also Professor of Obstetrics at the University of Minnesota Medical School. He characterized his father "as an ideal hus-

band and father who carried with him the teaching of his Presbyterian-minister father in his ideal of service to his patients. He carried in his little black bag, consolation, advice and a great fund of stories and quotations, which so many times emphasized a point or took the strain out of a controversy. Even his bill heads softened the blow, for around the margin were quotations such as: 'Hope is a good breakfast but a poor supper.'

Also, he had a great friendship for his classmates, Dr. W. A. Dennis, Dr. Walter Ramsey of St. Paul, and Dr. Frank Warren of Faribault. He used to say jokingly that he and Dr. Dennis were such close friends because their offices were at different ends of the building and their cases did not often cross. He had almost a brotherly affection for Dr. Arthur A. Law, who had been a boyhood friend and his immediate superior officer in the Spanish-American War. He had the highest admiration for Dr. MacLaren, with whom he was associated in practice for many years. He and Dr. E. Starr Judd used to try to get together once a year to relax and spend an afternoon at a baseball game. With the death of Drs. Dennis, Law, and Judd, Dr. Ritchie often remarked that he lost three of his best friends.

His home life was ideal. Mrs. Ritchie was a devoted and sympathetic wife for whom he had the greatest love and admiration. Occasionally, he would remark, "A doctor is lucky if he has a good-looking, clever wife, who is understanding of his problems, like Mrs. Ritchie." When he tended to work overtime at the office, Mrs. Ritchie would often call him. He would say, "Mrs. Ritchie knows she can always get me home in a hurry if she tells me we are having German potato salad for dinner!" He was an ideal father, and was almost worshipped by his grandchildren. When people asked him how many grandchildren he had, he would remark that he had thirteen yesterday, but Mrs. Ritchie hadn't called him yet this morning to say if the number had increased.

For the past few years his son, Dr. Wallace Ritchie, had been associated with him in practice; in his son he found a worthy successor to carry on the Ritchie tradition in medicine.

While Dr. Ritchie had not been in good health for a few years prior to his death, his indomitable spirit overcame much of his physical weakness. When death came quietly from hypertension with cardio-vascular complications, there was none that did not speak with admiration and respect of his sterling qualities of heart and mind. Few men leave behind them such pleasant memories as a teacher, surgeon, father and friend, as did Dr. Harry Parks Ritchie.

CHARLES E. REA, M.D.
Saint Paul

OCCUPATIONAL HEALTH HAZARDS

(Continued from Page 823)

that everything in the plant should have a definite place and should be kept there. Disorderly plants encourage slovenly habits among the workers. Accumulations of dust and dirt on floors, walls, beams, and rafters tend to increase the general dustiness in the plant atmosphere. Dust can be removed by vacuum cleaning methods. Containers holding materials giving off vapors, fumes, or gases, should be stored or placed so that these substances do not contaminate the general atmosphere.

Efficient Maintenance Necessary

The proper installation of control measures is not sufficient in itself to give lasting protection against toxic materials. The efficient maintenance of these control measures is necessary because ventilation systems and protective equipment sometimes lose part of their original effectiveness. Frequent checks should be made to insure that workers are making proper use of protective devices. When changes in industrial processes or in materials are made, studies should be made to determine potential health hazards.

It is obvious that industrial physicians, as well as the engineering staffs of individual plants, cannot be expected to know all methods and means for the control of occupational health hazards. There are a multiplicity of ideas to be considered. One must, therefore, rely on outside agencies for help in these matters. Such an agency, as most physicians realize, has been recently established in the Minnesota Department of Health. The Division of Industrial Health of this Department provides a medical and engineering advisory service for the investigation and control of occupational health hazards. The engineering personnel of this Division is prepared to study the working environment for toxic concentrations of hazardous materials, and, when necessary, to offer recommendations for the control of these health hazards. As a final word, the industrial physician can facilitate this work by properly reporting occupational diseases, using the forms provided by the Division of Industrial Health.

G. J. RASCHKA, P. H. Engineer,
Division of Industrial Health,
Minnesota Department of Health.

Liberty has never come from government. Liberty has always come from the subjects of it. The history of liberty is the history of resistance. The history of liberty is a history of limitations of governmental power, not the increase of it.—WOODROW WILSON.

I congratulate poor young men upon being born to that ancient and honorable degree which renders it necessary that they should devote themselves to hard work.—ANDREW CARNEGIE.

REPORTS and ANNOUNCEMENTS

MEDICAL BROADCAST FOR OCTOBER

The Minnesota State Medical Association broadcasts weekly at 10:15 o'clock every Saturday morning over Station WCCO, Minneapolis and St. Paul, and at 11:30 o'clock over Station WLB, University of Minnesota.

Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

- October 3—General Principles of First Aid
- October 10—The Prostrate Patient
- October 17—Head Injuries
- October 24—Spinal Injuries
- October 31—Wounds of Face and Mouth.

1943 A.M.A. MEETING CANCELLED

The decision to omit the contemplated annual session of the American Medical Association scheduled for San Francisco in 1943 has been announced by the Board of Trustees. Among the many factors which led to the decision were doubtless the large percentage of the profession in service and unable to take part or attend the meeting and so many of these not in service too busy to attend.

The House of Delegates of the association will meet in Chicago instead of San Francisco at a date to be announced. Thus the scientific, but not the organizational activities of the association, will be the ones to suffer mostly.

The annual conference of secretaries of component state associations and editors of state journals will be held as usual in Chicago, November 20 and 21.

AMERICAN ACADEMY OF PHYSICAL MEDICINE

The American Academy of Physical Medicine will hold its Twentieth Annual Scientific Session at the Hotel Statler, Boston, October 14 to 17, 1942. The program will be composed of clinical and scientific presentations involving techniques of importance in Wartime Medicine.

Topics of the discussions and demonstrations include Physical Medicine in relation to Aviation Medicine, Physical Education, Habilitation, Rehabilitation, First Aid, and War Injuries, as well as consideration of the use of physical agents in injury and disease falling within the scope of various medical specialties. There will be symposia on Poliomyelitis and Electrosurgery. Encephalography, Electroshock, Fever Therapy, and Other Special Procedures will be discussed by outstanding authorities.

Speakers will include pioneers in the development of physical medicine in the earlier World War, physicians actively concerned with military medicine, and leaders

in the special medical fields. A clinic will be conducted at the Massachusetts General Hospital. The Academy will have the coöperation of the Massachusetts Institute of Technology and other Medical and Scientific Institutions.

Captain William Seaman Bainbridge, M.C., U.S.N., is the president. The chairman of the Committee on Program is Lt. Col. William D. McFee, M.C., U.S.A.R. Physicians are invited to attend without registration fee. A copy of the official program can be obtained from the secretary-treasurer, Herman A. Osgood, M.D., 144 Commonwealth Avenue, Boston, Mass.

CONFERENCE ON VENEREAL DISEASE CONTROL NEEDS IN WARTIME

Venereal disease and America's war effort will be discussed by high-ranking medical officers of the War and the Navy Departments, prominent physicians, health officers and others at a Conference in Hot Springs National Park, Arkansas, October 21-24, 1942. Headquarters will be at the Arlington Hotel.

The Conference will be held under the auspices of the United States Public Health Service in conjunction with the Eighth Annual Meeting of the American Neisserian Medical Society. Surgeon General Thomas Parran will preside. State and local health officers, venereal disease control officers, practicing physicians, and all others engaged in venereal disease control activities are urged to attend.

Subjects for discussion will include venereal disease control measures influencing the war effort, epidemiology of syphilis and gonorrhea—1942, wartime venereal disease control education, research influencing the wartime venereal disease control program, and techniques of venereal disease education.

AMERICAN COLLEGE OF SURGEONS

The annual Clinical Congress of the American College of Surgeons will be held November 17 to 20, 1942, at the Cleveland Public Auditorium, instead of at the Stevens Hotel in Chicago.

The program will be centered around the many medical and surgical problems incident to the war, including army and navy needs and civilian defense.

The meeting will be addressed by Surgeon Generals James C. Magee, Ross T. McIntire and Thomas Parran of the Army, Navy and Public Health Service, respectively, Lt. Col. George Baehr, Chief of the Civilian Defense, Dr. Frank H. Lahey, chairman of the Procurement and Assignment Service, Dr. Irvin Abell, chairman of the Board of Regents of the College, and Dr. W. Edward Gallie, president of the College.

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CLARENCE MARTIN JACKSON LECTURE

Dr. Thomas Francis, Jr., of Ann Arbor, chairman of the Department of Epidemiology at the School of Public Health, University of Michigan, will deliver the Clarence Martin Jackson Lectureship under the auspices of the Phi Beta Pi medical fraternity, on October 21 at 8:15 p.m. in the Museum of Natural History auditorium, University of Minnesota campus. His subject will be "An Interpretation of Current Studies in the Control of Epidemic Influenza."

In addition to his post at the University of Michigan, Dr. Francis is serving as director of the Influenza Commission for the United States Army.

UNIVERSITY ALUMNI CLINICS

The University of Minnesota Medical Alumni Clinics will be held on the University campus, October 22, 23 and 24, in connection with Homecoming Week activities. The Clinics will be largely concerned with "War Medicine and Surgery."

Highlights of the three-day session will be the reunion of the twenty-year class (that of 1922) and the annual alumni luncheon meeting. The latter is scheduled for Friday, October 23.

THE MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and

Country Club in Saint Paul, Tuesday evening, September 15, 1942. Dinner was served at 6:30 o'clock.

The program for the evening was as follows:

1. Case report—JOEL C. HULTKRANS, M.D.
2. The identification and measurement of the psychoneuroses in medical practice; the Minnesota multiphasic personality inventory—J. C. MCKINLEY, M.D., and STARKE R. HATHAWAY, M.D. (by invitation).

WOMAN'S AUXILIARY

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Minneapolis, Minnesota

Mrs. R. J. Josewski, president of the Woman's Auxiliary to the Minnesota State Medical Association, has set Friday, October 23, as the date for the autumn meeting of the Board. Arrangements for the luncheon meeting will be made by Mrs. W. B. Roberts of Minneapolis.

* * *

Washington County Auxiliary held its first meeting September 8, with Mrs. J. H. Haines presiding. Mrs. D. Kalinoff was named *Hygiea* chairman, and Mrs. J. W. Stuhr has assumed the duties of publicity chairman. A good year to you, Washington County!

◆ OF GENERAL INTEREST ◆

Dr. J. F. Lynn, former health officer of Waseca, has been reappointed to that office succeeding Dr. George H. Olds who resigned to enter the Army Air Corps.

* * *

Dr. D. E. McBroom has returned to the Colony for Epileptics at Cambridge, after a year's leave of absence.

* * *

Dr. N. O. Pearce of Minneapolis has been appointed social hygiene lecturer in the Minnesota Department of Health, Division of Preventable Diseases.

* * *

Dr. R. J. Cairns, formerly of Sanborn, has moved to Redwood Falls, where he is associated in practice with Dr. J. Gordon Cole in the Cole-Cairns Clinic.

* * *

A course in Diseases of the Heart (Etiology, Pathology, Diagnosis, Treatment) will be given for physicians at the Center for Continuation Study, University of Minnesota, October 12-17.

* * *

Dr. John B. Erich of Rochester presented a motion picture on "Traumatic Injuries of the Face" at a meeting of the Eleventh District of the Wisconsin Medical Society and the Interurban Academy of Medicine in Superior, Friday, August 14.

Dr. Irvine McQuarrie, head of the department of pediatrics at the University of Minnesota, will deliver the Porter Memorial Lectures at the University of Kansas in Lawrence, November 3 and 4.

* * *

Dr. M. M. Hursh of Hibbing has been appointed school physician of Hibbing, succeeding Dr. A. B. Rosenfield who recently was called to service in the Army Medical Corps.

* * *

Dr. L. J. Alger of Grand Forks, North Dakota, has announced the discontinuance of his practice in Otolaryngology and the limitation of his practice exclusively to Ophthalmology.

* * *

Fire which gutted the Butterfield State Bank building at Butterfield destroyed the equipment of Dr. L. M. Hammar and Dr. O. E. Hagen who had offices in the building. The structure, which was the finest two-story building in Butterfield, was gutted from basement to roof, with only the brick walls left standing.

* * *

The American Medical Association has canceled its 1943 meeting to avoid further stress on physicians' time and the nation's transportation facilities.

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gates, scientific councils, and Association officials will meet in Chicago in June, 1943, rather than in San Francisco as scheduled.

* * *

Presiding at the annual meeting of the Martin County Nursing Service held September 17 in Fairmont was Dr. G. H. Luedtke, president of the board. Guest speakers included Dr. W. A. O'Brien of the University of Minnesota and Miss Nora Rolf of the Minnesota Department of Health.

* * *

Among guest speakers at the tenth annual clinical assembly of the Omaha Mid-West Clinical Society to be held in Omaha, October 26-30, will be Dr. Arild E. Hansen of Minneapolis, University of Minnesota pediatrics department, and Dr. Harry M. Weber of Rochester.

* * *

Attention of the physicians of Minnesota is called to the request of the Division of Preventable Diseases of the State Department of Health that outdated containers and empty tuberculin or vaccine bottles which are not needed be returned to the office as it is difficult to obtain new equipment of this sort.

* * *

Staff meetings at the University of Minnesota Hospitals are being held "as usual" this year on Friday noons, the first meeting of the 1942-43 series being conducted October 2. This is the fourteenth consecutive year that the general staff sessions have been held. As in the past, talks presented will be compiled into a

mimeographed bulletin and distributed. The subscription fee for the year is \$2.

* * *

Dr. and Mrs. C. W. Lundquist of Winona are the parents of a son, David John, born September 11. Dr. Lundquist, who has been associated with the Winona Clinic, left, October 1, to enter active service with the armed forces. A captain in the army medical corps, he has been assigned to the O'Reilly General Hospital, Springfield, Missouri.

* * *

Dr. William A. O'Brien, director of postgraduate medical education at the University of Minnesota, gave the commencement address at the graduation exercises of the Columbia Hospital for Nurses, Milwaukee Downer College, in Milwaukee, September 10.

Dr. O'Brien also gave the banquet address at the 4-H club dinner, sponsored by the Minneapolis Civic and Commerce Association, September 2, in the Radisson Hotel.

* * *

Among courses for public health nurses scheduled to be held at the Center for Continuation Study on the University of Minnesota campus during the 1942-43 term is one on Mental Hygiene to be given at the Center, October 29, 30 and 31, in conjunction with the health section of the Minnesota Educational Association. Other courses included one on Rheumatic Fever to be given in February and another on Communicable Diseases and Poliomyelitis to be given in May. All are three-day sessions.

The Mississippi Valley Conference on Tuberculosis and the Mississippi Valley Trudeau Society held their annual meetings in Chicago, September 16-18. On September 18, Drs. William R. Lovelace II and Horton C. Hinshaw, Rochester, discussed the "Effect of Reduced Barometric Pressure on Pneumothorax" before the Trudeau Society. On September 17, Dr. J. Arthur Myers, Minneapolis, spoke on "County Accreditation for Tuberculosis Control."

* * *

The American Medical Association has given \$1,000 to the Meeker County Tuberculosis Control Experiment, it is announced by Dr. J. A. Myers of Minneapolis, chairman of the Committee on Tuberculosis of the Minnesota State Medical Association.

The \$1,000 gift and an equal amount from the National Tuberculosis Association contributed previously, will be used to purchase x-ray film.

The experiment, which began in April last year, calls for tuberculin testing of every resident of the county, plus physical examination. Meeker county physicians are giving their services without charge.

* * *

The seventy-seventh annual meeting of the Michigan State Medical Society was held in Grand Rapids, September 23-25. The program was divided into general assemblies and sectional meetings. One feature included ten discussion conferences covering the specialties, in which several Minnesota people participated.

"Nephrosis and Nephritis" was the title of the paper read by Dr. E. Thompson Bell of Minneapolis, and "Pyogenic Infections of the Skin, Particularly Hidradenitis" was discussed by Dr. Louis A. Brynning, Rochester.

Sister Elizabeth Kenny, Minneapolis, participated in the round-table discussion of poliomyelitis; Dr. H. S. Diehl, dean on Medical Sciences at the University of Minnesota, spoke on "Procurement and Assignment."

* * *

When the Kansas City Southwest Clinical Society held its twentieth annual fall clinical conference in Kansas City, Missouri, October 5-8, four Minnesota men were guest speakers at the general assembly sessions. They were: Dr. Walter A. Fansler, of Minneapolis, who presented papers on the "Carcinoma of the Rectum" and "Surgical Treatment of Hemorrhoids"; Dr. Byrl R. Kirklin of Rochester, "Cancer of the Gastro-Intestinal Tract" and "The Present Status of Cholecystography"; Dr. Wesley W. Spink of Minneapolis, "Chemotherapy of Infectious Diseases" and "Toxic Reactions Encountered During Sulfonamide Therapy; and Dr. S. Marx White of Minneapolis, "Management and Training for the Patient with Essential Hypertension" and "The Carotid Sinus Reflex."

* * *

Dr. Miland E. Knapp of the University of Minnesota Medical School staff, and Dr. Earl C. Elkins of Rochester, are newly elected vice presidents of the American Congress of Physical Therapy which met September 9-12 in Pittsburgh.

Dr. Elkins was among those conducting a symposium on fever therapy at the Congress, while Dr. Knapp was



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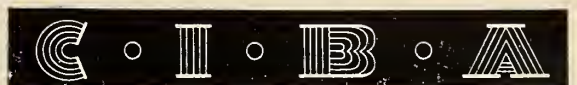
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one of three physicians who conducted a symposium on poliomyelitis.

The Congress presented its annual gold key award to Sister Elizabeth Kenny, Australian nurse, as the person "who has made the greatest contribution to the field of physical therapy" during the past year, and reported that her method of treating infantile paralysis at Minneapolis General and University Hospitals "has been increasingly studied and copied by the medical profession."

* * *

Beginning the fourth year of weekly radio health broadcasts for students in junior high schools, Dr. W. A. O'Brien, director of postgraduate education at the University of Minnesota Medical School, delivered the first talk of the series, September 30. The series, known as "Your Health and You," is broadcast over WLB and the Mutual Broadcasting Company each Wednesday of the school year, from 11 to 11:15 a.m.

The program for October and November follows:

October 7—"Importance of Health Habits."

October 14—"Effect of Good Posture"

October 21—"Disorders of the Feet"

October 28—"Effects of Exercise"

November 4—"Care of the Skin and Hair"

November 11—"Common Skin Diseases"

November 18—"Clothing and Health"

November 25—"Good vs. Bad Air"

Physicians are urged to recommend the program to schools.

* * *

Gifts totaling more than \$100,000 have been accepted by the University of Minnesota board of regents. Among the important medical contributions are:

\$10,700 from the National Foundation for Infantile Paralysis for continued study of the biochemical and physiological aspects of infantile paralysis.

\$10,000 from the National Foundation for Infantile Paralysis to be used for the support of Sister Kenny's work and for the continuation of the instructional program in the Kenny technique.

\$10,410 for Minneapolis General Hospital fellowships.

\$1,800 for Minneapolis General Hospital pediatrics directorship.

\$10,000 from the Home for Children and Aged Women to support the Children's Psychiatric Clinic.

\$7,000 from the National Research Council for research on fat metabolism under the direction of Dr. Arild E. Hansen, Department of Pediatrics.

\$5,160 from the U. S. Public Health Service for the support of a training program for nurse anesthetists.

\$4,000 from the W. K. Kellogg Foundation to establish a loan fund in the school of nursing.

\$3,000 from Sharp & Dohme, Inc., for researches on sulfonamides and in chemistry by Drs. Richard T. Arnold and William G. Clark.

\$1,200 from the Josiah Macy, Jr., Foundation, for support of a study on mechanism of the action of sex hormones, being made by Dr. Leo T. Samuels of the department of physiology.

\$1,200 and \$1,063 from the Rockefeller Foundation for British medical student fund.

\$1,000 from the Winthrop Chemical Company to establish research on pyrocyanine and other related hemo-therapeutic agents, under Dr. Joseph T. King of the department of physiology.

Physicians in Service

Army and Navy medical service appointments include the following Minnesota men this month:

Dr. W. P. Anderson of Buffalo has received a commission as captain and is stationed in Louisville, Kentucky. Dr. Anderson has closed his office in Buffalo for the duration of the war but expects to return following the end of hostilities.

Dr. Frederick P. Arny of Preston is serving as a first lieutenant in the Army Air Corps at Bowman Field, Louisville, Kentucky. Dr. Arny, whose term as coroner at Preston does not expire until the end of this year, will be succeeded by Dr. J. P. Nehring, who has been appointed to fill out the term.

Dr. S. H. Boyer, Jr., has reported for duty at Fort Douglas, Salt Lake City. He has been commissioned captain.

Dr. John L. Delmore, Jr., Roseau, commissioned a first lieutenant in the Army. He is now stationed at Fort Livingstone, Louisiana, where he is studying chemical warfare.

Dr. A. W. Doman, Lakefield, who reported for duty at Camp Barkley, Texas, September 23. He is a first lieutenant.

Dr. George W. Drexler was called to service at Fort Snelling the latter part of August.

Dr. Julius Yale Feinstein reported for duty September 5 at Chanute Field, Illinois.

Dr. John Feuling of Itasca Clinic in Bovey, who ended in the Navy.

Dr. J. E. Frank of Marshall reported in September at Bowman Field, Kentucky air base, where he is serving as captain in the medical corps, U. S. Army.

Dr. R. B. Graves of Red Wing, first lieutenant in the United States Army Air Corps, at Salt Lake City. Dr. Graves has been affiliated with the Medical Block Clinic since 1935.

Dr. Robert G. Hankerson, Minnesota Lake, left September 21 for Bowman Airfield at Louisville, Kentucky, after receiving his commission as first lieutenant in the U. S. Army.

Dr. Donald M. Houston, lieutenant in the U. S. Naval Reserve, reported September 28 for active duty at the Marine Base Hospital, San Diego, California.

Dr. J. C. Klein, Shakopee, commissioned a lieutenant and appointed as assistant surgeon in the medical corps of the Navy. Dr. Klein reports for duty, October 16, at Mare Island, San Francisco.

Dr. Leonard L. Lovshin of Rochester has received instructions to report for duty.

Dr. C. T. McEnaney, Owatonna, captain in the Army Air Force. Dr. McEnaney, a graduate of the St. Louis University Medical School, has been assigned to duty at Salt Lake City.

Dr. R. W. Merrill of Morris reported September 10

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to the Great Lakes Naval Training Station, Gre Lakes, Illinois. He has the commission of lieutenant in the United States Naval Reserve.

Dr. John E. Minckler of Virginia, who has been associated with the Malmstrom-Sarff Clinic, first lieutenant in the Army Air Force medical detachment. He reported for duty at Salt Lake City. A graduate of the University of Minnesota, Dr. Minckler served his internship at Ancker Hospital.

Dr. George H. Olds of Waseca has received his commission as captain in the Army Air Corps.

Dr. L. J. Roberts, Columbia Heights, commissioned lieutenant (jg) in the Navy Medical Corps. He reported for duty September 27 at Great Lakes Naval Training Station. During Dr. Roberts' absence, Dr. H. D. Good with whom Dr. Roberts has been associated, will take care of his practice.

Dr. H. A. Shaw of Lake Park reported at Salt Lake City, Utah, September 22, for duty with the Army medical corps.

Dr. G. J. Shima, Sleepy Eye, is serving as surgeon at the Fort Scott Hospital in California.

Dr. Peter Virnig, Minneapolis, who has been named Junior Medical Officer at the U. S. Naval Training School for signalmen, University of Illinois at Urbana. Dr. Virnig, a graduate of the University of Minnesota holds the rank of lieutenant (jg).

Dr. E. E. Zemke, Fairmont, assigned to medical corps of the 115th Cavalry regiment in which he has been a first lieutenant in the reserve since completing medical school. He has been practicing in Fairmont since 1930.

Hospital News

The new Glencoe Hospital, opened early this summer is serving the community under the direction of Miss Clara Draxton, R.N., Superintendent.

* * *

Mrs. Mary K. Olson, formerly of Abilene, Texas, is the new night supervisor at the Staples Municipal Hospital.

* * *

Dr. F. E. Harrington, Minneapolis health commissioner, has been detailed by the Public Welfare Board to take over direction of General Hospital while Dr. D. W. Pollard, present superintendent, is in army service. No successor to Dr. Pollard will be appointed, the position to be kept open pending his return. Dr. Pollard is serving with the commission of Major in the medical corps.

* * *

At the American Hospital Association meeting to be held in St. Louis, Missouri, October 12-16, the usual Minnesota Hospital Association breakfast will be held Tuesday morning, October 13, at the New Hotel Jefferson. Members of the hospital associations in North Dakota, South Dakota, and Montana have been invited



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BOOK REVIEWS

join the Minnesota group this year. Dr. Walter P. Gardner, president, will preside at the breakfast.

* * *

Dr. J. Nelson Ewbank is the new assistant superintendent of the Willmar State Hospital. A successor to Dr. Magnus Peterson, who left the superintendency at Willmar to go to Rochester, has not as yet been named. Dr. George F. Freeman, superintendent of the St. Peter Hospital, is serving as acting superintendent until a successor to Dr. Peterson is named.

* * *

Dr. Magnus C. Peterson has been appointed by the State Director of Public Institutions to the superintendency of the Rochester State Hospital, and assumed his duties there September 1. Dr. Peterson, who has been superintendent of the Willmar State Hospital for the past seven years, succeeds Dr. B. F. Smith at Rochester. Dr. Smith recently accepted a position as superintendent of the St. Joseph State Hospital of Missouri.

* * *

The Redwood Hospital, which recently became a municipal institution, is being remodeled to care for a larger number of patients. Remodeling will add a four-bed ward, a two-bed ward and a single room. It is expected that eventually the hospital will have twenty-four beds. Another improvement will be the addition of an emergency receiving room in the basement, where examining may be done also.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

A BIBLIOGRAPHY OF AVIATION MEDICINE. Ebbe Curtis Hoff and John Farquhar Fulton. Prepared for the Committee on Aviation Medicine, Division of Medical Sciences, National Research Council acting for the Committee on Medical Research, Office of Scientific Research and Development, Washington, D. C. 237 pages. Price \$4.00. Springfield, Illinois: Charles C. Thomas, 1942.

This bibliography brought up to date by the authors with the aid of a score of assistants, lists 6,000 references to the subject in many languages. In this comparatively new field of medicine the number of articles which have already been published is surprising, half of them in the medical field and half in associated sciences. Previously published bibliographies in English and German are included and the references brought up to January 1, 1942, a few which have appeared up to May 31, 1942, included.

The contents are classified under fourteen different headings and the references appear under subheadings such as History, Physiology, Pharmacology, Psychology including the name of author, title of article, journal, et cetera. Additional indices of authors and subjects add value to the volume.

The present world conflict will add much to the bibliography of aviation medicine. This most complete

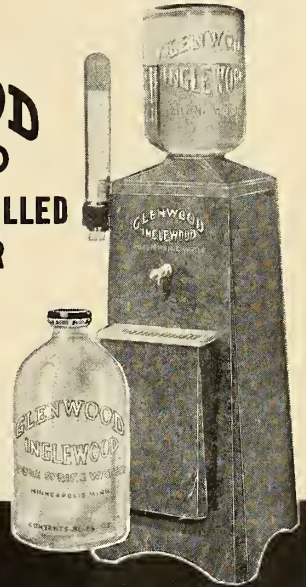
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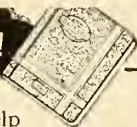
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bibliography to date represents a tremendous amount of detailed work and will prove invaluable to medical libraries in facilitating the ready reference to any and all phases of the subject.

ORBITAL TUMORS. Walter E. Dandy. 168 pages. Illus. Price \$5.00. Cloth. New York: Oscar Piest, 1941.

This unusual monograph reviews the results of twenty-four cases of orbital tumors treated surgically by the cranial route. Each case history in the series includes the history, physical and neurological examination, roentgenograms, a sketch of each operation (well labeled), gross and microscopic descriptions of the tissues removed and the subsequent course. The cases are also classified into four groups. Summaries of seven additional nonoperative cases are presented.

There is an excellent chapter devoted to a summary of the pathological study of the entire series of cases. A description of the operative procedure used by the author is presented in the most systematic and detailed manner.

The fruits of Dr. Dandy's experiences and results in this monograph are invaluable to the ophthalmologist and convincingly illustrates the necessity for close co-operation between the ophthalmologist and neurosurgeon.

ARCHIE OLSON, M.D.

THE PHARMACOPEIA OF THE UNITED STATES OF AMERICA. Twelfth Revision. Official November 1, 1942. Easton, Pa.: Mack Printing Co., 1942. 880 pages.

Since the first Pharmacopœia was published in 1820 the U.S.P. has contained the very foundation of drug therapy in America. Published every ten years, the next will appear in five years, with a bound supplement in two and one-half years and interim revisions and supplements from time to time.

The rather conservative policy of the publication has resulted in the addition of a new remedy only after it has proven its worth and the removal of remedies only because of its innocuous desuetude.

The coöperation of the British Pharmacopœial Commission in the preparation of U.S.P. XII has been most gratifying. The Committee on Revision has also had the coöperation of Auxiliary Commissions of Cuba, Puerto Rico and the Philippines. In U.S.P. XII the pharmacopœial substances are listed with their corresponding Spanish titles for the first time while the U.S.P. continues to be published in a Spanish edition.

Another new feature of the U.S.P. XII is the addition of the commonly available sizes of tablets, capsules and injections. This was done at the request of physician members of the Committee on Revision.

The U.S.P. XII becomes official November 1, 1942. Besides containing information regarding the preparation of medicinal drugs, it contains a wealth of material about reagents, test solutions, volumetric apparatus and the like, and is as ever most complete.



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PATHOLOGY OF THE ORAL CAVITY. Lester Richard Cahn, D.D.S. 240 pp. \$5.50. Baltimore: Williams & Wilkins Co., 1941.

"Pathology of the Oral Cavity," being written by a dentist, is especially valuable as a textbook for those in the dental profession. It covers all subjects which the dentist may encounter in his practice, relating to pathology. For diagnostic purposes it is invaluable. The chapter on oral soft tissue lesions associated with avitaminoses opens the door to a subject which hitherto has held a place of little or no importance in the mind of the average dentist. This subject may become one of extreme importance from the standpoint of diagnosis.

Attention is called to the effect of x-ray therapy on the enamel of the teeth, an effect which I believe has so far escaped the attention of a great majority of the dental profession.

The book contains much valuable information set forth in concise, easily understood language. In all, this is a commendable work, well worth a place in anyone's library.

C. W. BENSON, D.D.S.

THE RELATIVITY OF REALITY. René Laforgue, M.D. Translated by Anne Jouard. Nervous and Mental Disease Monographs (No. 66). 92 pages. Price \$2.50. New York: Nervous and Mental Disease Publishing Co., 1940.

The title of this interesting, thought-provoking monograph is taken from the caption of the third of five

chapters entitled "Concerning Anxiety," "On Conflicts in the Affective Development," "On the Relativity of Reality and the Genesis of the Need of Causality," "Reflections Concerning the Intellect," and "Reflections on the Notions of Free Will, of Liberty and of Death."

This presentation is of interest and value to psychiatrists whether or not they employ formal psychoanalytic technique.

The monograph opens with the following quoted paragraph:

"Anxiety and the manifold symptoms to which it may give rise form an important chapter in clinical psycho-analysis. We are here concerned with a group of patients including those suffering from phobias and hypochondriasis, in whose symptomatology anxiety is very much in the foreground. Among others, by way of contrast, such as those with obsessions, hysteria, paranoia, schizophrenia and frustration neuroses, anxiety is no longer in evidence, being concealed behind the defense barrier invented by the patient in order to escape from it. Both the manifestation of defense and the anxiety itself may be more or less apparent, according to the case. But, according to Freud, anxiety remains at the center of the problem of neuroses. And it is the study of neuroses that has made clear the role of anxiety in the development of civilizations. Thus in order to understand civilization and the place it occupies in the psychic economy of man, it is necessary first to study anxiety as seen in the neurosis."

A good discussion of anxiety is then presented.

Next the circumstances in which the individual must face anxiety in the course of its development and the causes likely to increase anxiety in a pathological way



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are presented. The way in which anxiety is handled in a healthy manner and the influence of anxiety on the development of intelligence and conscience of the individual and the group are later delineated.

Concerning the relativity of reality, the following quotations are illuminating:

"The conception of reality, as we see it, is therefore in a large measure a function of development of the libido of the ego, both individual and collective. It would seem that this development must of necessity go through oral, anal, and genital stages before arriving at the conception of reality as it appears to us. Even then, as regards the course of this development there are countless individual variants, according as certain individuals and groups, by reason of fixations, arrive at only partial marshalling of the libido of their ego which is held captive at oral or anal stages." Thus it is stated: "In the course of the ego's development there appear first, magic-thinking and the animistic conceptions, then religious thought and the poly- or mono-theistic concept. This concept is slowly transformed into a scientific concept while the ego achieves the synthesis of all the libido impulses capable of utilization in conscious life." Again: "As a result we seem to distinguish three different levels of reality: magic reality, religious reality and scientific reality, including numerous transitional planes among those three, and it would seem that the way they are conceived is, in a large measure, a function of the development of the ego and of the need of causality."

The "intellect" is next discussed. By intellect is meant "the sum total of aptitudes which the ego of an individual utilizes in seeking to face reality with a scientific approach."

The discussion attempts to apply the considerations previously noted to present everyday life. Four groups of intellects are recognized: the intellect with oral predominance, that with anal predominance, that with anal predominance but with a genital component, and the intellect with genital predominance.

Intellectual types in a pure state are seldom actually met with. It is emphasized that the intellect of genital predominance is not "at all times better equipped than the anal type of intellect to defend our contemporary civilization."

The discussion of free will, liberty, and death is based on the ideas developed in preceding chapters. The concluding remark, which cannot be fairly judged without careful study of its context, is most interesting: "The march of ideas and the clash of opinions which constitute what we call today fascism and communism for example, appear to me to be one aspect of this profound psychic process, of this gestation of life seen in the developmental activity of the collective ego of society today."

The chief value of this monograph lies in its ability to provoke careful thought. One need not agree with its material to profit from its study.

WALTER P. GARDNER, M.D.

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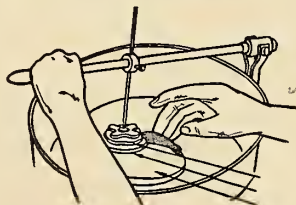
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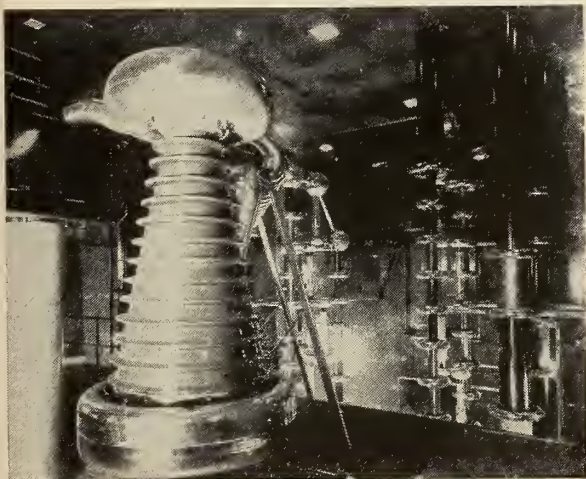
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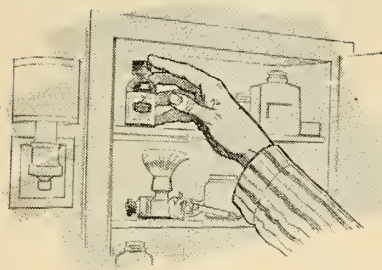
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* *The Military Surgeon*, Vol. 39, No. 1, p. 5, July, 1941
J. A. M. A., 93:1110—October 12, 1929
Brückner; H.—*Die Biochemie des Tabaks*, 1936

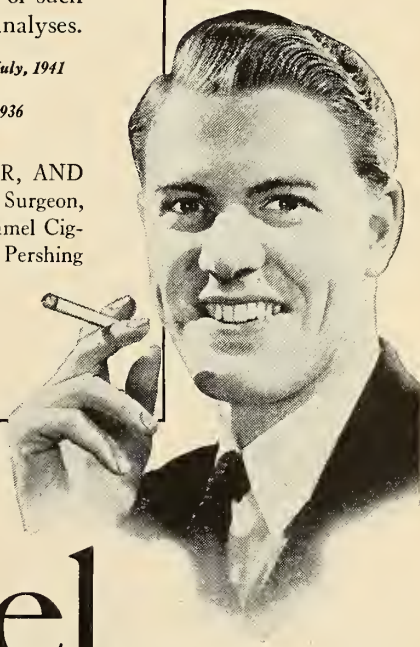
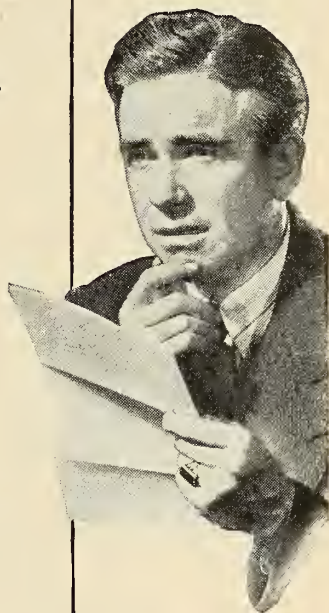
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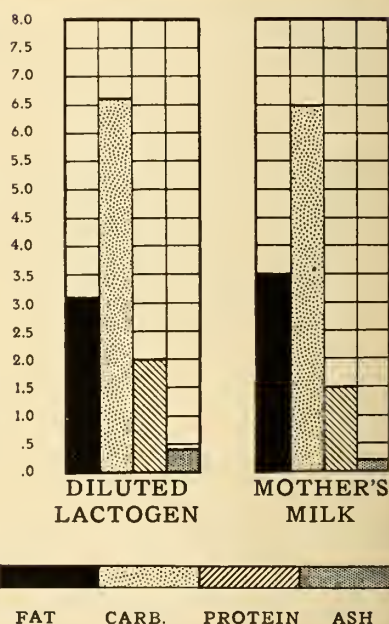
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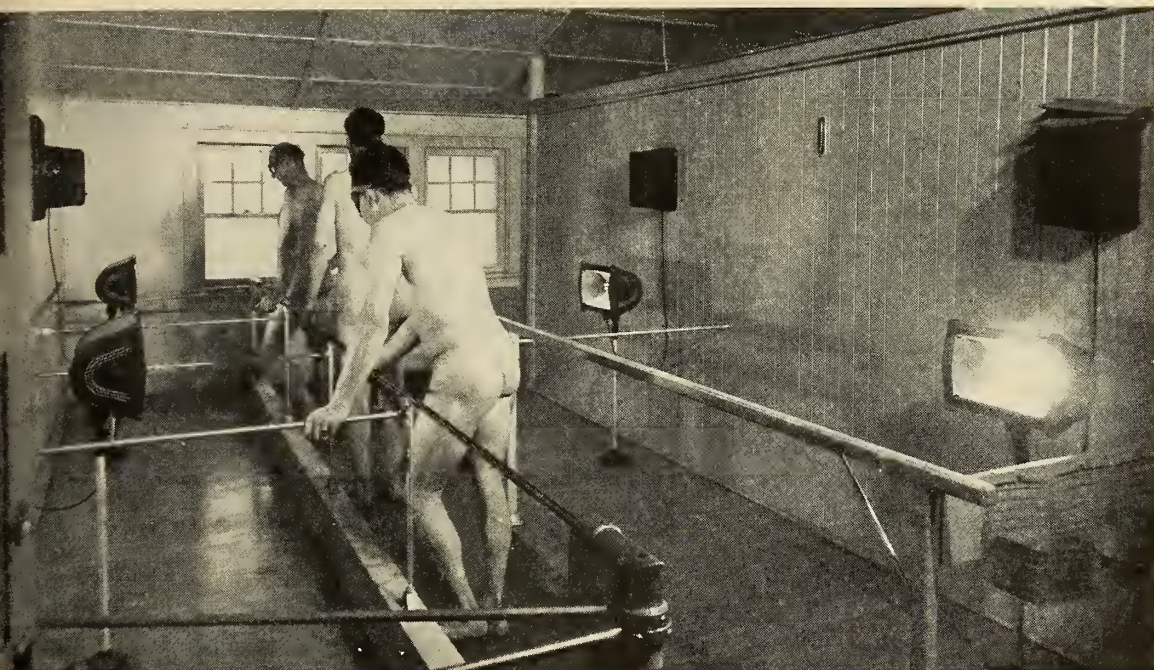
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Clinical Pediatrics, p. 156.*



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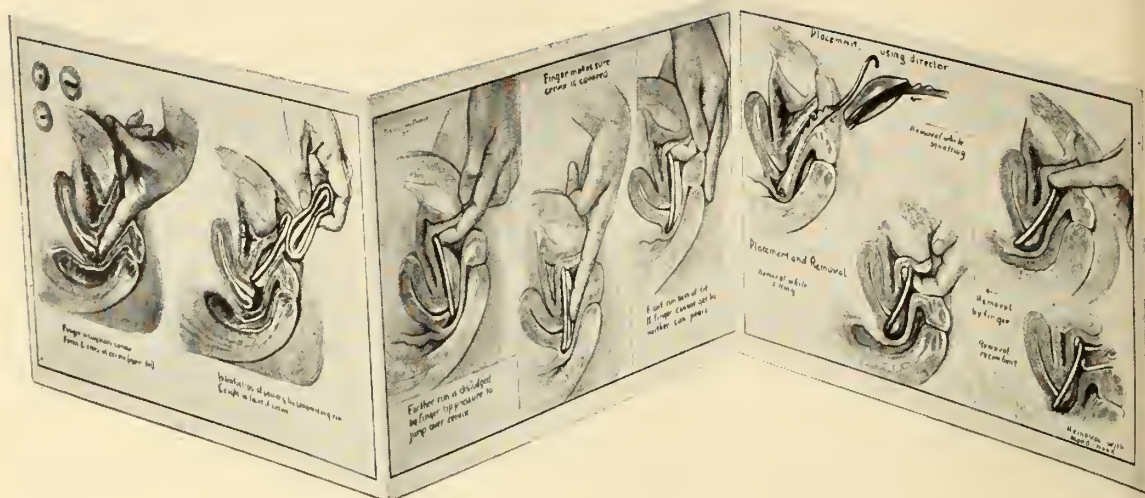
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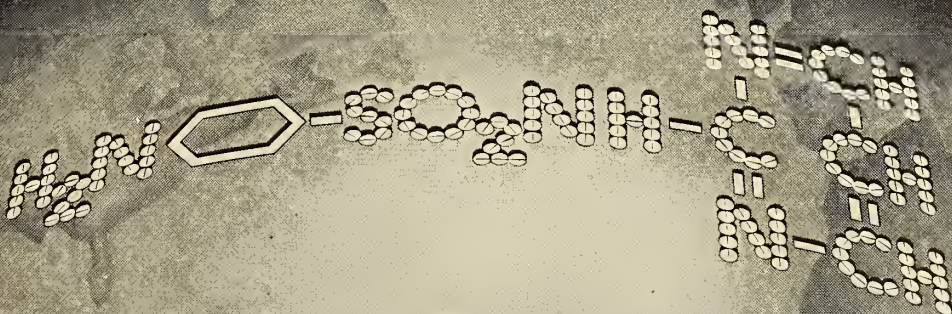
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* *Laryngoscope*, Feb. 1935, Vol. XLV, No. 2, 149-154
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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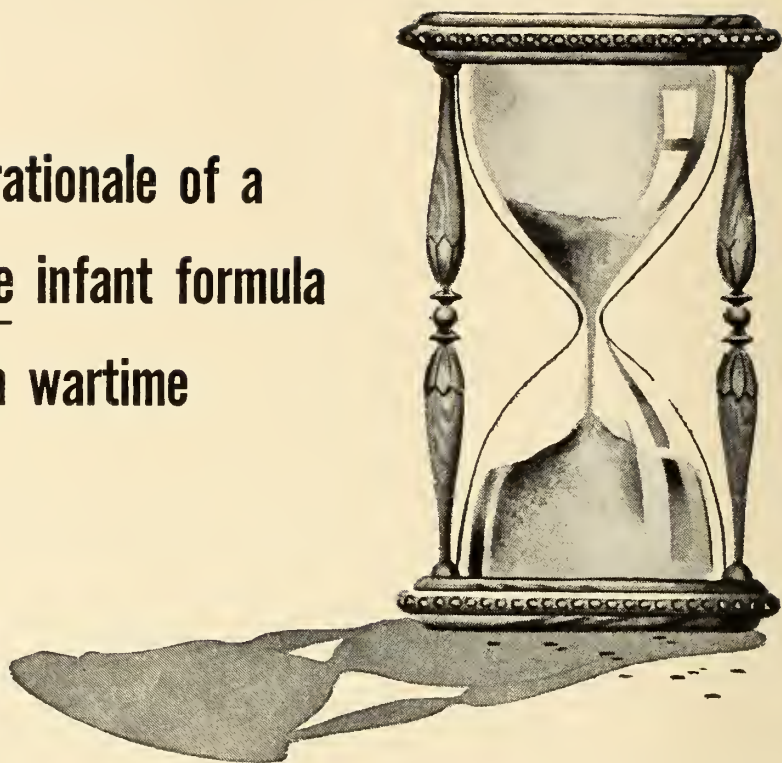


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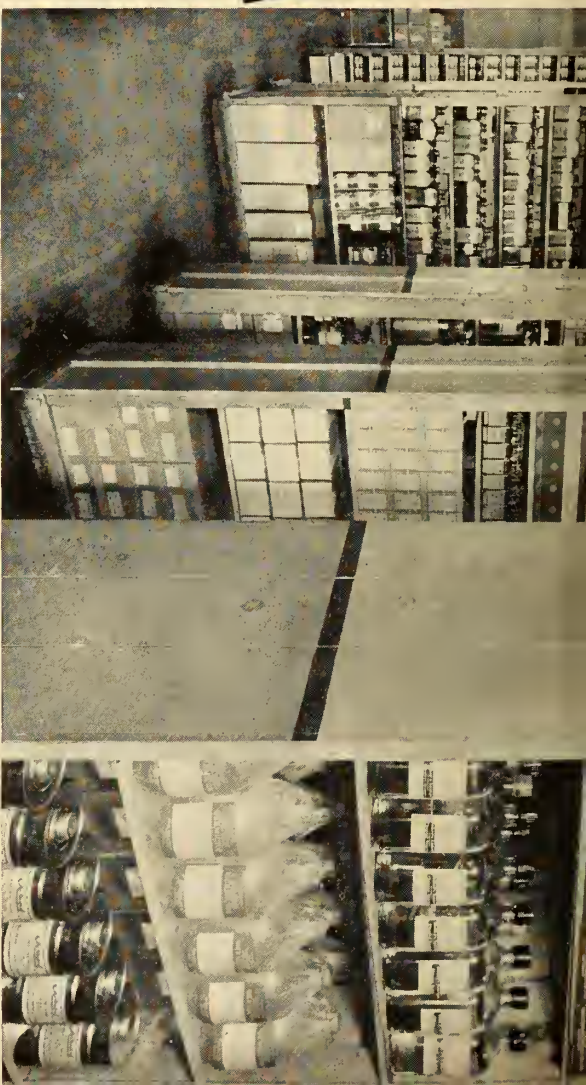
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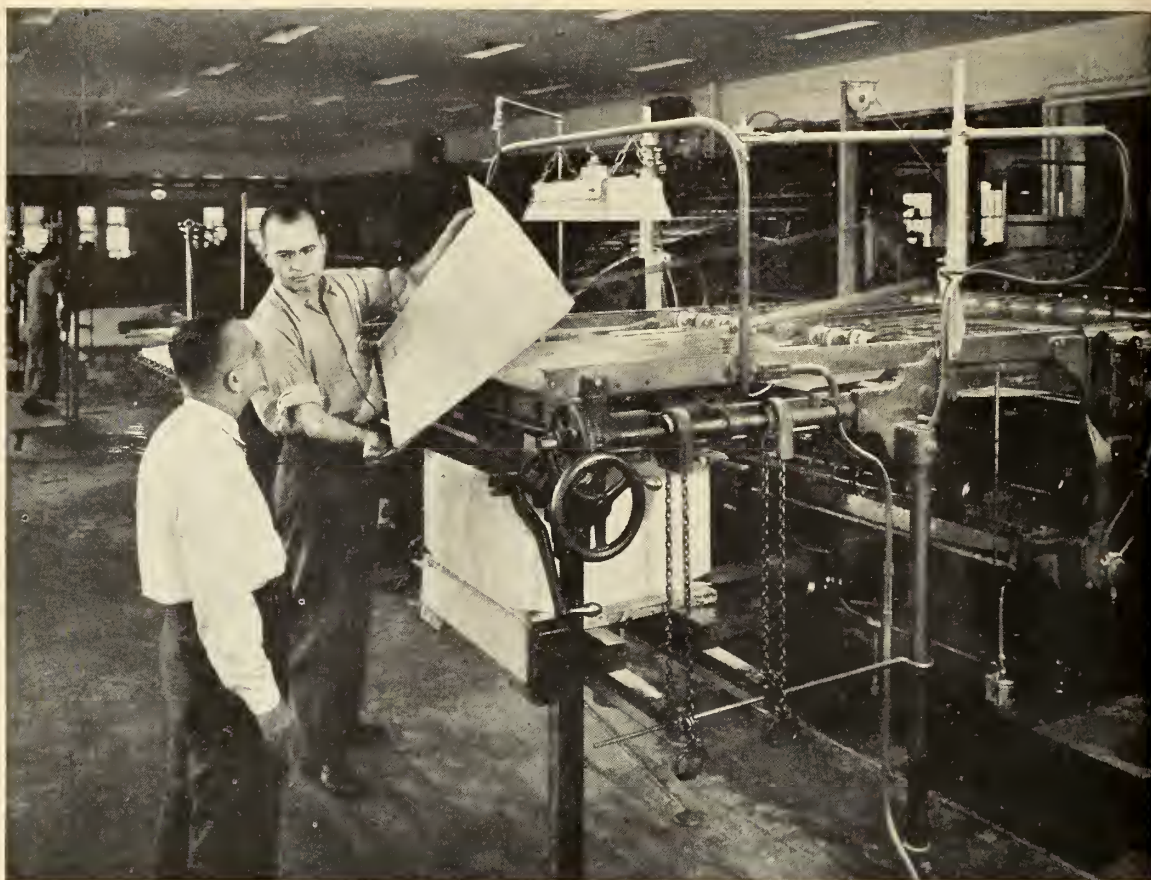
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THE USE AND ABUSE OF THE SULFONAMIDES

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BECAUSE we learn largely through experience, and profit particularly from our past mistakes, I think that it is worth while to discuss some of the errors of sulfonamide therapy which experience has shown that it is possible to avoid. Mistakes in this field may be roughly grouped into three main classes: (1) those concerned with choice of a drug or selection of a disease for treatment, (2) those concerned with dosage of the drug and (3) those concerned with toxicity of the drug (the most important group).

Mistakes in the first group usually are due to selection of a drug which is unsuited for the infection to be treated. Thus, it is an error to use sulfanilamide, which is largely effective against beta hemolytic streptococci, for treatment of infections produced by pneumococci or staphylococci. Sulfanilamide is also unsuited for treatment of infections produced by unknown organisms, because these infections may be caused by pneumococci or staphylococci. For staphylococcal infections sulfathiazole seems the preferable drug, although sulfapyridine or sulfadiazine can be used. For pneumococcal infections, sulfathiazole, in general, probably has some preference over sulfapyridine because of its lower toxicity and, by the same virtue, sulfadiazine has some preference over sulfathiazole. Sulfadiazine, sulfapyridine or sulfathiazole can be used for treatment of infections of unknown cause, for each is effective for beta hemolytic streptococci as well as pneumococci and staphylococci. Errors in this first group also occur when an attempt is made to use a sulfonamide drug against diseases which experience has shown fail to respond to such treatment. Among

some of the diseases of this type are chronic infectious arthritis, acute rheumatic fever, tularemia and various virus infections, including the common cold.

Errors in the field of drug dosage are equally serious, whether they are due to the giving of too much drug or too little drug. We are likely to forget in treating mild infections, and particularly infections involving the urinary tract, that amounts of a sulfonamide drug of as little as 2 to 3 gm. (30 to 45 grains) administered daily in divided doses to the adult person usually will give as satisfactory results as will larger doses. Unnecessary and large doses have the disadvantage that they may disturb the patient, and may do so to a degree that necessitates discontinuance of use of the drug before cure is effected. On the other hand, in infections of moderate severity such as pneumonia and of marked severity such as bacteremia and meningitis, it is necessary to use large doses of drug initially in order to obtain a sufficiently high concentration of the drug in the body to control the infection before organisms have multiplied excessively and before extensive foci of tissue destruction have been set up. In infections of moderate to marked severity, therefore, the effort should be made to obtain from the initial doses of the drug the concentration of drug desired, and then merely to maintain this concentration by subsequent daily doses of drug. This is in contrast to early methods, in which small initial doses of drug were given and the concentration was gradually raised by increasing daily doses of the drug as the patient's condition became increasingly worse from day to day.

Errors frequently are made in serious infections by waiting to complete every detail of the diagnostic pattern before treatment is started.

From the Division of Medicine, The Mayo Clinic, Rochester, Minnesota. Remarks made in the Symposium on Therapeutics at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 30, 1942.

Thus, a delay of a day or two before starting treatment, while awaiting some laboratory report such as a blood culture may mean the difference between success and failure in a severe infection. In these conditions it is necessary also to continue to maintain the desired high concentration of drug in the body until complete recovery has occurred, for an appreciable decrease in this concentration may permit a relapse. Unfortunately, also, recurrences may ensue in severe infections if some amount of drug is not administered for as long as three weeks after the fever has subsided and clinical recovery has seemed to occur. The reason for this may be readily understood if the fact is borne in mind that use of the sulfonamides neither accelerates nor hinders the formation of antibodies and other immune processes, and therefore confers no special immunity to specific infections.

Errors associated with drug toxicity undoubtedly form the largest group of errors resulting from use of the sulfonamides. It seems to me that many of these mistakes probably could be eliminated at the outset if all patients were grouped prior to treatment so that sulfonamide treatment could be judged to be either an optional or an essential measure. In the classification in which sulfonamide therapy is considered to be optional, all infections should be included for which the ordinary prognosis is good and for which other satisfactory measures of treatment are available. Such diseases as gonorrhea and tonsillitis would thus be included in this group. When sulfonamide treatment is considered to be optional it is not justifiable to ignore evidences of moderate toxicity and to continue use of the drug when such symptoms occur. On the other hand, in severe infections, such as meningitis and bacteremia, the fact that the prognosis ordinarily is poor and the fact that sulfonamides usually are the sole reliable measures of treatment make the use of sulfonamide drugs an essential therapeutic measure; that is, essential if one is to hope for recovery. Under the latter circumstances, continued use of a sulfonamide drug is sometimes justified when toxic symptoms occur which would contraindicate its use if treatment were to be considered purely optional. Serious errors have been made all too frequently in the past when some patient who had mild disease, such as gonorrhea, continued to receive a sulfonamide drug in spite of recurring or persisting marked symp-

toms of headache, vertigo, nausea, anorexia and the like. These symptoms frequently precede more serious complications and necessitate discontinuance of sulfonamide when it is being used as an optional measure. The same is true of a cutaneous rash, which may terminate as exfoliative dermatitis. On the contrary, however, when sulfonamide treatment is considered essential, the drug under such conditions may continue to be administered with caution or a change may be made to another sulfonamide under close observation, because in such an instance sulfonamide treatment seems essential to recovery. Many errors will be avoided if all patients receiving appreciable amounts of a sulfonamide for a few days have blood counts at frequent intervals, as indicated by the condition of the patient and the previous value of the blood count. I am sure that all patients receiving sulfathiazole, sulfapyridine or sulfadiazine in appreciable amounts should have their urine examined daily and their intake and output of fluid carefully checked. Probably the majority of renal complications could be avoided if all patients receiving these drugs were treated according to a regimen which included a fluid intake of at least 3,000 c.c. and a urine output of 1,400 c.c. These drugs are practically entirely eliminated in the urine, and a high fluid balance of course allows a greater degree of dilution of drug with less opportunity for renal damage. Under these circumstances, also, when there is a decrease in the output of urine or when symptoms of renal colic or hematuria arise, it is possible to detect the disturbance at a time when the margin of safety is greater, because of the high output of urine, and use of the drug usually may be discontinued before serious renal damage occurs. In the final analysis, it seems to me that most errors concerned with drug toxicity occur from a lack of observation and a failure to detect toxic complications early and to heed them, rather than to a lack of knowledge of action of the drugs. Most of us have sufficient knowledge to enable us to use the sulfonamides intelligently, but most of us also have been guilty of contributing to the abuse of these drugs at some time because we have failed to detect or heed warnings of toxicity when they have occurred and have failed to discontinue the use of the sulfonamide when its further use was attended with unnecessary risk.

HYPERSENSITIVITY TO THIAMINE HYDROCHLORIDE

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WITH the advent of parenteral administration of thiamine hydrochloride (vitamin B₁), there have appeared in the literature a number of untoward reactions. Of these reactions, some can be classified as toxic, while others have been true allergic reactions. During the past year, two cases of hypersensitivity to thiamine hydrochloride have been studied. They are presented here, together with a review of the literature dealing with unusual reactions to thiamine hydrochloride.

Review of the Literature

Hecht and Weese¹ in 1937, were the first to demonstrate the lethal effect of massive doses of thiamine hydrochloride given intravenously in experimental animals.

In the same year, Perla² produced adverse effects on animals by giving excessive doses of thiamine hydrochloride.

In December, 1938, Steinberg³ reported five cases of untoward effects resulting from the use of large doses of thiamine hydrochloride. However, of these five cases, only two are suggestive of true allergic reactions. Both of these patients experienced constriction of the throat and a fullness in the epigastrium almost immediately following intravenous administration. In addition, one of these patients developed nausea. In the three other cases reported, herpes zoster developed following intensive vitamin B₁ therapy. This was apparently a toxic reaction, and the resultant effect was an irritation of the peripheral nerve endings. This was the first report to suggest the possibility of allergic or toxic reactions to vitamin B₁ in humans. Unfortunately, in the above two suspected allergic reactions, neither intradermal nor passive transfer tests were carried out to establish an allergic etiology.

In May, 1941, Mills⁴ reported a number of cases of unusual symptoms to thiamine hydrochloride, which he ascribed to thiamine overdosage. The nature of the symptoms do not suggest a development of hypersensitivity, but rather a true toxic reaction due to overdosage. These symptoms resembled those of overdosage with thyroid extract. They were: headache, increased

irritability, insomnia, palpitation, rapid pulse, weakness, tremor, nausea and sometimes vomiting.

In July, 1941, Laws⁵ reported a case in which the following symptoms occurred thirty minutes after the subcutaneous injection of thiamine hydrochloride: violent sneezing, edema of the lips and eyelids, the appearance of large urticarial wheels on the entire body, and a feeling of tightness in the chest. The patient then became very dyspneic and cyanotic, at which time audible wheezing was present. Symptoms were controlled by the subcutaneous administration of epinephrine hydrochloride. Intracutaneous and passive transfer tests were carried out in this case, both of which were positive.

About the same time, Stiles⁶ reported two cases of apparent sensitivity to thiamine hydrochloride. Intracutaneous tests were positive. Passive transfer tests were not attempted in these cases. The symptoms in these cases, such as increased pulse rate, excessive nervousness, profuse perspiration, and a feeling of agitation and panic resembled very closely those described by Mills, which he ascribed to overdosage. The usual allergic or anaphylactic manifestations encountered after parenteral therapy were entirely missing. The symptoms in these two cases appear to be due to overdosage rather than a true hypersensitivity to vitamin B₁. Regardless of the positive intracutaneous tests obtained, the validity of the specificity of these positive tests must be questioned, since I have observed irritating qualities of thiamine hydrochloride on intracutaneous injections if very dilute solutions are not used.

In November, 1941, Schiff,⁷ in discussing a paper by Joliffe on the use of parenteral vitamin therapy in neuropsychiatric disorders, reported a case of severe anaphylactic reaction following the intramuscular injection of 25 mgms. of thiamine hydrochloride. Previous to this injection, the patient had received fifty-seven intramuscular injections of thiamine hydrochloride. Within a minute or two after the fifty-eighth injection, the patient became nauseated and vomited, voided involuntarily, and collapsed. Respiration ceased and the patient became pulseless. With the aid

of immediate artificial respiration and intravenous epinephrine hydrochloride, the patient eventually recovered. After recovery, the patient stated that she had noted sneezing after the last three or four injections. Scratch tests in this case were strongly positive. Passive Transfer Tests were not carried out. In the same discussion, Mills⁸ reported a case of sudden death following parenteral administration of thiamine hydrochloride. Autopsy in this case revealed multiple ecchymoses beneath the pia over both cerebral hemispheres, with areas of encephalomalacia and perivascular hemorrhage. The cause of death in the above case was undoubtedly an anaphylactic reaction.

In addition to the above reported cases, the following two cases have been observed by me within the past year:

Report of Cases

Case 1.—E. R., white, male, aged twenty-four, with a diagnosis of peripheral neuritis, was placed on vitamin B₁ therapy. Both oral and parenteral therapy were jointly employed. The patient received his first injection in May, 1941, and received 25 mgms. parenterally every third day for ten doses. The patient showed a marked improvement and therapy was stopped.

Two months later, the patient's symptoms returned, and parenteral thiamine hydrochloride was again given. After the fourth subcutaneous injection, the patient complained of marked swelling and itching at the area of the previous injection. He stated that this occurred after the third injection, but was much milder. Parenteral therapy was immediately stopped and intradermal tests with the commercial vitamin B₁ were done, which were markedly positive. In fact, the patient complained of itching at site of the tests for twenty-four hours after the intradermal tests were done. On further testing with pure crystalline thiamine hydrochloride dissolved in an aqueous solution, the intradermal tests were again positive. The intradermal tests with the preservative contained in the commercial preparation were negative. Passive transfer tests were carried out on a number of persons, but they were all negative. The above illustrates a case of local anaphylaxis which involved the area of injection. Possibly if further parenteral therapy had been continued, a general anaphylactic reaction might have occurred. Subsequently, the patient continued to take thiamine hydrochloride orally without any adverse effects.

Case 2.—Miss D. B., white, female, aged thirty-one, first received subcutaneous thiamine hydrochloride in August, 1940. She received daily injections for twenty-four days during her hospital stay. After her release from the hospital, the patient continued to receive injections at intervals of seven to ten days.

In June, 1941, after one year of continuous parenteral therapy, about five minutes after receiving a subcutaneous injection of vitamin B₁, the following symptoms

appeared: angioneurotic edema of tongue, lips and eyes, a peculiar fullness and itching of the ears, and violent sneezing. Her skin then became hot and itched unbearably. The symptoms disappeared fifteen to twenty minutes following subcutaneous epinephrine hydrochloride. The following week a similar but milder reaction resulted following a very minimal subcutaneous injection. The patient was then referred to me for possible hypersensitivity to thiamine hydrochloride. Intradermal tests to both commercial and aqueous solutions of thiamine hydrochloride crystals were strongly positive. Intradermal tests for the preservative used in the commercial preparation were negative. Passive transfer tests, however, were entirely negative. The patient subsequently continued to take thiamine hydrochloride orally without any adverse effects.

Discussion

In analyzing the above two cases, there were a number of striking similarities.

Even after the allergic reaction appeared, both patients subsequently tolerated thiamine hydrochloride orally. Why these patients were able to tolerate vitamin B₁ orally, and yet showed definite allergic reactions to parenteral thiamine hydrochloride is hard to explain. One may theorize on the possibility of the existence of a rather high threshold of sensitivity to vitamin B₁ in these individuals and that the concentration of thiamine hydrochloride taken orally was never at a sufficiently high level at any one time to evoke an allergic reaction. An analogous situation exists in the normal intake of vitamin B₁ in the daily diet.

The immunological response shown was identical with that experienced with well-known sensitizing proteins such as horse serum. Normally, the latent or incubation period to produce sensitization does not exceed seven to ten days. As long as injections of thiamine hydrochloride were given at an interval of less than seven days, no constitutional reactions resulted, but when the interval exceeded one week, in both cases an anaphylactic reaction resulted. The clinical importance is evident in that the possibility of an allergic reaction following parenteral administration increases as the interval between injections is lengthened.

Another similarity present in both cases was the presence of positive intradermal tests and the absence of positive passive transfer tests. However, it has often been demonstrated that definite clinical sensitivity may exist even in the absence of demonstrable circulating antibodies.

This may be explained by the presence of serum of low antibody titre.

Summary and Conclusions

1. A review of the literature of untoward reactions to thiamine hydrochloride has been made.
2. Reactions to thiamine hydrochloride have been both toxic and allergic in nature.
3. Five cases of apparent sensitivity to thiamine hydrochloride have thus far been reported.
4. Two more cases of thiamine hydrochloride sensitivity have been added to the literature.
5. With the definite establishment of the possibility of thiamine hydrochloride sensitivity, the skin testing of patients who are about to receive thiamine hydrochloride parenterally may be a

wise precautionary measure, especially if previous administration has taken place.

Grateful acknowledgment is made to Dr. A. B. Litman and Dr. Alex Blumstein for making these cases available for study.

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THE DIAGNOSIS AND TREATMENT OF LICHEN PLANUS

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LICHEN PLANUS in its usual form does not present a difficult diagnostic problem since the typical flat, angular, violaceous, waxy papules are readily recognized. More and more, however, dermatologists have come to recognize the multiplicity of clinical features the disease may present. There is a wide variation in the color and arrangement of the lesions in lichen planus; they may be atrophic or hypertrophic and subjective symptoms may be lacking or intense. The chief purpose of this discussion is to briefly review the more unusual types.

Those who have studied large series of cases of lichen planus such as Little,²¹ White,⁴⁰ Culver,⁸ and Jacob,¹⁷ have noted that the extremities are the most common sites of involvement, that lesions occur on the trunk in about a third of the cases, on mucous surfaces in about 20 per cent, on the male genitals in about 25 per cent, and universally in about 20 per cent of the cases. The face, scalp, palms, soles, and perineum are involved only rarely. According to Culver⁸ lichen planus occurs in less than 2 per cent of patients presenting themselves because of cutaneous disease. About 80 per cent of all cases occur

between the ages of twenty and sixty, and the disease is extremely rare in children. Figures concerning the relative incidence in males and females vary among different observers.

The disease usually develops insidiously and follows a chronic course of months to years. It may remain quiescent for months after the original outbreak but is usually characterized by exacerbations and remissions. The occasional acute case may appear as an exanthem, even becoming generalized within one to a few days. The disease may disappear spontaneously but in most untreated cases tends to persist. Lord²² reported four distinct recurrences of lichen planus in a series of thirty-three cases, which in his opinion gravitated against the prevailing impression that recurrences are extremely uncommon. In a general way it may be said that the prognosis is good if suitable treatment is carried out for a long enough period of time.

Lichen Planus of Mucous Membranes.—Although involvement of the mucous membranes in the ordinary type of lichen planus is not unusual, instances in which the disease is confined to the oral cavity are uncommon. Fox,¹¹ in 1931, described ten such cases and excellently discussed

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the frequency, diagnosis, duration, and response to treatment of this form of the disease.

The lesions, which as a rule were of several months' duration, were found on the buccal mucosa of the cheeks, usually opposite the interdental cleft. In some, the dorsum of the tongue, the upper lip, and the soft palate were affected.

The eruption consisted of superficial, grayish-white lesions in the form of minute puncta, linear streaks, circles and reticulated or solid areas. Although in most cases the lesions were smooth, there was slight roughness in a few.

Subjective symptoms, when present, consisted of a burning sensation or soreness. Since the subjective symptoms are so mild, lichen planus of the mouth is most important from the diagnostic standpoint since it is frequently mistaken for leukoplakia. Fox felt that in the differential diagnosis between lichen planus confined to the mouth and leukoplakia difficulty arose only in the early stages of the latter. Lichen planus does not affect the commissures to any great degree whereas in leukoplakia this is a favorite location. Lesions in the form of fine dots, circles, or reticulated areas are not characteristic of leukoplakia. In contrast to the latter, erosions or ulcerated areas are almost always absent in lichen planus. Histologic examination is an additional aid in diagnosis.

Lichen planus of the lips is also a rarity. The lower lip is more commonly affected and as a rule is accompanied by lichen planus of the buccal mucosa. Douglass Montgomery,²⁷ who reported ten cases in 1938, stated that the clinical appearance of the lesions on the lips resembled that in the mouth, i.e. stripes, rings, stars, lace-work and dots shining through the upper layers of the epithelium. Montgomery also mentioned that lichen planus of the lips may appear as a cheilitis with erosions, purulent discharge and tightly adherent crusts.

Reports concerning lichen planus of the conjunctivæ are extremely rare. Gaucher and Druelle,¹³ in 1904, referred to lesions on the lower palpebral conjunctivæ as part of an extensive lichen planus. In 1924, Luhr²³ reported a case of generalized lichen planus in which the bulbar conjunctivæ showed several sago-like bodies. I have had the opportunity to observe one case of the disease in which there were lesions on the bulbar conjunctivæ and on the margin of the lower lid of the left eye.

Lesions of lichen planus similar to those occurring on other mucous membranes are seen rarely on the nasal mucosa.

The description of the eruption in the mouth may also be applied to that occurring on the mucosa of the female genitals. In many cases there is simultaneous involvement of the mouth and vulva. The question of atrophic lichen planus of the vulva and lichen sclerosus et atrophicus of this region will be discussed later.

Lichen planus of the male genitals usually gives rise to no diagnostic confusion. Culver found that the penis was affected in 25 per cent of 148 cases, the eruption appearing as grouped or isolated papules, rings or reticulated areas. Similar lesions may be present, though less frequently, about the anus and perineum.

Annular Lichen Planus. Annular lesions in lichen planus occur in about 10 per cent of cases according to Little,²¹ ranking second in frequency only to the hypertrophic variety. Little believed that annular lesions developed from a large single papule which cleared in the center rather than from a group of smaller papules. It has been shown since, however, that such lesions may develop in either way.

Linear Lichen Planus.—The well-known tendency of lichen planus papules to appear in lines may be exaggerated to form this type. Little noted that linear lichen planus appeared most commonly in children. Linear lesions may occur either on the trunk or extremities. None of the theories which have been advanced to account for the occurrence of eruptions in linear arrangements are entirely satisfactory. Hypotheses concerning distribution along the course of blood or lymph vessels, nerves, Voight's lines or dermatomeres, do not explain all cases of linear eruptions. Senear and Caro³⁴ after carefully studying these various theories stated that at present the most acceptable hypothesis is the concept of the existence in the skin of zones of increased irritability (fragile zones) probably determined congenitally by various factors.

Concomitant and histopathologic findings permit the differentiation of linear lichen planus from nevus unius lateralis, linear psoriasis, and lichen striatus. The latter presents as a linear, lichenoid, papular eruption occurring as a rule in children unilaterally on an upper extremity.

In an excellent paper, Senear and Caro³⁴ recently discussed this condition and stated that it warranted a place as a distinct entity. The onset is usually sudden and involution with or without therapy is the rule within a few weeks to several months. The histologic picture is that of a chronic lichenified dermatitis rather than of lichen planus or psoriasis.

Hypertrophic (Verrucous) Lichen Planus.—

This is the most common of all the special varieties of lichen planus. Hypertrophic lesions occur most frequently on the lower extremities, occasionally the upper, in cases of long standing in which the papules have lost many of their ordinary characteristics and have formed thickened, warty, elevated plaques. Such patches may be rounded, elongated or irregular and are reddish-brown or purple in color. The surface is scaly, rough and verrucous and may be excoriated since the accompanying pruritus is usually intense. Areas of pigmentation may be interspersed between the hypertrophic plaques. The term lichen planus obtusus has been applied to a type of the disease characterized by round or oval, flat or convex, rough, warty papules of large size (pea to bean or larger) occurring chiefly on the extremities with or without ordinary lesions.

Cases of lichen planus in which the palms and soles are involved may present lesions which resemble verrucae and which are usually yellow in color rather than violaceous. In most cases the palms and soles are affected as part of a generalized eruption but in certain cases, such as that of Weber and Rattner,³⁹ the lesions may be limited to those areas.

Lieberthal,²⁰ in 1916, described another unusual form of hypertrophic lichen planus which he called the shin-guard type or lichen planus ocreiformis. In this case there were pinhead to bean sized, angular, flat and convex firm papules on both tibial regions. Some of the yellowish-brown lesions were smooth while others were rough and scaly. The plaque in its entirety resembled a "cobblestone pavement." There were lesions on the mucosa of the cheek which suggested lichen planus and the histopathologic findings fitted such a diagnosis.

Vesicular and Bullous Lichen Planus.—

Vesicles at the tops of the papules as well as bullae occur in some cases of lichen planus. In 1933 Strauss³⁶ found seventy-eight examples of

this type in the literature and reported three of his own cases. The vesicles varied in size from that of a pinhead to a hen's egg and from 1 to 200 in number. A relationship to the age of the patient could not be established. In six cases vesicles preceded the typical papular manifestations of the disease. Through the courtesy of Dr. Henry Michelson I recently observed a female, aged thirty-three, whose first lesions were multiple bullae 1 to 2 cm. in diameter arising from a noninflammatory base. The eruption was generalized, although the mucosae were unaffected. At the beginning the eruption was regarded as that of pemphigus but within a few weeks typical lichen planus papules were noted as the bullae disappeared.

Vesicles and bullae in lichen planus may occur on any area including the mucosae, although they are more frequent on the dependent lower extremities. It has been stated that this type of the disease is more common in patients who have taken arsenic. Strauss, however, cited many cases in patients who had never received such medication. Eosinophilia was present in 10 per cent of the eighty-one cases and Nikolsky's sign was positive in two.

Although lichen planus is usually dry on the surface, edema is a distinctive and early characteristic of the pathologic process. An unusual amount of edema in certain cases offers an explanation of the vesicular and bullous types of the disease.

Lichen Ruber Moniliformis.—(Morbus Moniliformis Lichenoides—Wise and Rein) Until the paper by Wise and Rein⁴¹ on this subject in 1936, it was generally believed that lichen ruber moniliformis was a variety of lichen planus. This dermatosis was originally described by Kaposi in 1886 and up to 1936 sixteen additional cases were reported under the same title. The outstanding feature of Kaposi's case was a striking and bizarre arrangement of waxy papules, nodules and keloid-like elongated strands forming parallel ridges chiefly in the neck and flexor surfaces of the arms and legs and disposed in conspicuous vertical rows corresponding to the long axes of the neck and extremities. The eruption resembled strings of pearls or coral beads. Many vertical linear lesions were also present on the abdomen, back and buttocks and there were papules in retiform arrangement on the thighs.

In other areas such as the chest, abdomen and back, there were numerous small, firm, slightly elevated, glistening brownish-red papules some of which were depressed centrally. Pigmented spots were interspersed among the papules. There were no excoriations. Although the genitals were free, flat papular lesions were seen on the labial mucosa and there was an adherent grayish-yellow membrane on the buccal mucosa.

Following a thorough study of the literature and their own case, Wise and Rein concluded that lichen ruber moniliformis was entirely unrelated to lichen planus. In many biopsies there were no changes which would lead one to link the pathologic picture with that disease.

Lichen planus of the Eyelids.—A review of the voluminous literature on lichen planus indicates that lesions on the eyelids are extremely rare. In 1938 Michelson and I²⁶ reported five such cases. We observed three types of lesions on the lids: (1) the ordinary lilac colored, slightly delled, shiny papules; (2) papules arranged to form annular lesions such as are frequently seen on the glans penis; and (3) sepia brown, retiform pigmentation simulating erythema ab igne and similar to the melanotic staining seen in certain patients with lichen planus in the late stages of regression. In one case of this type the histopathologic findings were characteristic for lichen planus. Lesions on the lids may or may not be accompanied by efflorescences on other parts of the body.

Lichen Planus of the Nails.—Involvement of the nails in lichen planus is rare. Pardo-Costello³² stated that, in extensive cases of the disease and in chronic types involving the extremities, paronychias, dystrophies similar to those found in other dermatoses and transverse or longitudinal striations may be seen. As a rule all of the nails are not affected. Little²¹ described pitting of the nails in lichen planus similar to that found in psoriasis, as well as longitudinal flutings. Lewis and Ricchiuti¹⁹ recently described a case of lichen planus of the nail bed and reviewed seven others in the literature affecting one or several nails. Their patient had lichen planus on the legs, arms and glans penis. Later a violaceous papule appeared on the nail bed of the left thumb within the lunula and grew to occupy about a third of the nail. The

nail plate over it became thinned, and that portion of the plate distal to the lesion showed longitudinal striæ. The lesion responded to x-rays. The author mentioned roughness of the nails, subungual hyperkeratosis, thickening, thinning, brittleness or fragility, yellow or yellowish-gray color, opacity and shedding as occurring in lichen planus. Koilyonychia has been noted following lichen planus. Although Heller¹⁴ believed that thickening, increased fragility, yellowishness and opaqueness are characteristic nail changes in lichen planus, Lewis and Ricchiuti agreed with Jadassohn¹⁸ that such dystrophic changes are purely coincidental in many instances and not pathognomonic for that disease.

Lichen Planus Erythematosus.—This unusual type of lichen planus was originally described by Crocker⁷ and later discussed by Freeman¹² in 1926. The lesions are a deep crimson, soft to the touch, and can be temporarily obliterated by pressure. In one of Crocker's cases the eruption was limited to the grain and abdomen while Freeman's case presented soft, smooth, cherry to violaceous colored papules arranged in a retiform manner resembling cutis marmorata on the flexor aspects of the forearms. The histologic picture was that of lichen planus with epidermal atrophy.

Follicular Lichen Planus and Lichen Planus et Acuminatus Atrophicans.—Follicular lesions in lichen planus may occur on the trunk or extremities in conjunction with the ordinary flat-topped papules. The follicular lesions are usually brown or yellowish-brown in color, non-inflammatory, horny, acuminate, and impart a "nutmeg grater" feel to the affected skin. When acuminate papules occur with typical lesions of lichen planus the diagnosis is not difficult but in the absence of these an eruption of horny, acuminate papules offers great difficulties in diagnosis, since keratosis pilaris, keratosis, follicularis, phrynodema and pityriasis rubra pilaris come into consideration. Lichen planopilaris³¹ is the term which Pringle applied to this form of lichen planus in which the ordinary lesions are accompanied or followed by an eruption of follicular papules indistinguishable from those of lichen spinulosis. Adamson,¹ in his classic description of lichen spinulosis, defined that disease as one occurring chiefly in children, and characterized by horny,

filiform papules distributed symmetrically over the trunk and extremities, said that its occurrence in an adult means lichen planus.

Combes and Bluefarb⁵ recently reported an example of a follicular type of lichen planus which they termed "lichen planus follicularis circumscriptus." The lesions occurred in well marginated patches on the arms, thighs, and legs and were made up of miliary red papules which under magnification were follicular, angular, scaly and nonconfluent. The sites of previous lesions were marked by a well-defined, milk-white area of atrophy 2 to 5 mm. in diameter. There was neither pigmentation, follicular plugging nor punctate pitting. Histologic examination showed the picture of lichen planus with atrophy.

In 1922 Feldman¹⁰ reported a case under the title of lichen planus et acuminatus atrophicans. The patient was a forty-five-year-old woman who had lesions of lichen planus on the arms, face, neck and trunk which left brown, pigmented areas after involution. These areas later became depigmented and atrophic. Interspersed among the ordinary lesions of lichen planus were hemispherical, pink or red, acuminate papules each having a yellowish-brown to almost black horny plug. Cases similar to Feldman's had been previously reported as "folliculitis decalvans et atrophicans" or "folliculitis decalvans et lichen spinulosus" by Little, Dore, Beatty and Ormsby. These cases differed from Feldman's to the extent that there were no typical papules of lichen planus and the patients showed areas of alopecia and atrophy on the scalp. There were, however, no follicular pustules on the scalp, a finding which is essential for a diagnosis of folliculitis decalvans according to Quinquaud, who originally described that disease. Ormsby's patient showed an atrophic area in front of the left ear similar to the lesions on the scalp. Since the ear region is nonhairy the atrophy could not be accounted for on the basis of folliculitis decalvans. In 1921, Little presented a case in which there were atrophic areas on the scalp, lichen spinulosus-like lesions on the body and a scattering or ordinary lichen planus papules on the body and lesions on the tongue and buccal mucosa which were variously diagnosed as lichen planus or leukoplakia. In 1936¹⁰ Feldman reported two more cases, each of which had atrophic, bald patches on the scalp, discrete and grouped, acuminate, follicular, plugged papules on the body

as well as unmistakable lesions of lichen planus. Feldman felt that this syndrome in its entirety should be considered as a type of atrophic lichen planus rather than folliculitis decalvans plus lichen spinulosus. For further details reference may be made to Feldman's publications and a recent article on the subject by Ellis and Kirby-Smith.⁹

Atrophic Lichen Planus; Lichen Sclerosus et Atrophicus.—Perhaps the most confused aspect of lichen planus is its possible relationship to lichen sclerosus et atrophicus. The entire subject of atrophic lichen planus, lichen sclerosus et atrophicus, lichenoid scleroderma, and kraurosis vulvæ is viewed differently by leading dermatologists at the present time. It is not within the scope of this paper to go into these differences of opinion in detail and reference to the subject may be made from other sources such as the papers by Nomland²⁹ and Montgomery and Hill.²⁸

In brief, most observers agree that lichen sclerosus et atrophicus, lichen albus of von Zumbusch and chronic atrophic lichenoid dermatitis of Csillag are the same disease. Furthermore, there is little question that lichenoid or guttate types of morphea exist which can be distinguished histologically at least from lichen sclerosus et atrophicus. The moot point is whether or not lichen sclerosus et atrophicus is a form of atrophic lichen planus. It is my present belief that Nomland and Montgomery and Hill are correct in their opinion that lichen sclerosus et atrophicus is a distinct entity and can be distinguished in most cases clinically and especially pathologically from atrophic lichen planus on the one hand and morphea guttata on the other.

The characteristic lesion of lichen sclerosus et atrophicus is an irregular, often polygonal flat topped papule, presenting an ivory or mother-of-pearl color which is striking. The papules may be discrete, or coalesce to form plaques, but in most cases both types of lesions are present. Delling and follicular plugging is regarded as an important diagnostic aid. When the lesions occur on the female genitals they coalesce to form plaques which simulate kraurosis vulvæ. According to Montgomery and Hill the atrophic lesions in kraurosis vulvæ do not extend beyond the inner aspects of the labia majora and merge gradually with the normal skin while the sharply defined plaques of lichen sclerosus et atrophicus

icus extend onto the thighs and perianal region. The individual papules may be seen in lichen sclerosus et atrophicus. The diagnosis of the latter disease depends upon the recognition of these typical white papules together with correlation with histopathologic observations. Hunt²⁶ in discussing the subject linked kraurosis vulvæ with lichen sclerosus et atrophicus, associating both with atrophic lichen planus. I do not share this view.

True atrophic lichen planus is extremely uncommon. A good example of this type of the disease was the case which Nomland²⁹ reported in 1930. The eruption involved the scalp, face, arms, legs, and body. Most of the lesions were from 0.5 to 1.5 cm. in diameter and appeared as brown, atrophic, finely wrinkled, depressed macules, many of which had a narrow elevated violaceous shiny margin. There were a few typical papules of lichen planus on the skin and white lines and dots in the mouth. There was an atrophic bald area without pigmentation on the scalp.

Montgomery believes that even though atrophic forms of lichen planus may simulate lichen sclerosus et atrophicus, other more characteristic lesions of lichen planus are usually found on the skin or musosæ. Dermatologists whom I have questioned cannot recall seeing typical lesions of lichen planus together with the ivory-white lesions of lichen sclerosus in which adequate histopathologic studies were done. Montgomery, however, has seen cases of atrophic lichen planus which somewhat resembled lichen sclerosus clinically but which histologically were lichen planus.

Lichen Planus-Like Drug Eruptions.—From time to time eruptions closely simulating or indistinguishable from lichen planus have been observed following injections of the arsphenamines or gold salts. In 1921 Buschke and Freymann⁴ reported two cases of lichen planus-like eruptions occurring after arsphenamine therapy. In one, the clinical features were those of lichen planus while the histopathologic findings were nonspecific and in the second the reverse was true. McCafferty²⁴ and Ahlswede² wrote articles on the subject in the American literature. McCafferty's case, which occurred during antisymphilitic therapy, was completely indistinguishable clinically and histologically from true lichen planus. There were typical lesions of lichen planus in the mouth.

Similar cases following gold therapy are exemplified by those of Pautrier and Roederer³³ and Traub.³⁸ The case of Pautrier and Roederer showed an admixture of ordinary and verrucous lesions of lichen planus. There was also involvement of the buccal mucosa. Traub's patient had lichen planus eight years previously but had recovered and remained well until she received gold therapy for arthritis. After two or three injections a generalized eruption appeared which was said to be rather typical of lichen planus both clinically and histologically.

Those who have discussed this topic have considered the following three possibilities:

1. The eruptions following arsphenamine and gold are true lichen planus and appear purely coincidentally.
2. The eruptions are true dermatitis medicamentosa merely simulating lichen planus.
3. The eruptions are true lichen planus, a disease which can be precipitated by diverse factors including drugs.

Ahlswede stressed the constitution or disposition of the patient and felt that drugs could act as a trigger mechanism to provoke lichen planus in a specially reactive type of skin. He compared such an occurrence to "seborrheic-like" syphilitic eruptions occurring in individuals with an oily skin. In discussion of Traub's case Sachs expressed a similar opinion. Peck, however, stated that Satenstein believed that lichen planus-like eruptions due to drugs could be differentiated from true lichen planus because of the increased depth of the infiltrate in the former. The question of coincidence is also raised by Traub's case since the patient had an attack of lichen planus previously. Further study of these eruptions is necessary before final conclusions can be drawn. The important point is that lesions identical to those of ordinary lichen planus can appear following the injection of the arsphenamines or gold salts.

Histopathology

Lichen planus presents a characteristic histologic picture consisting of an increase in the stratum corneum and stratum granulosum with varying degree of acanthosis. There is pronounced vacuolization and necrosis of the basal cell layer and a dense lymphocytic infiltrate in the upper

portions of the cutis. According to Nomland²⁹ and to Montgomery and Hill²⁸ this infiltrate persists even in the atrophic forms when the epidermis becomes decidedly thinned. The findings in lichen planus of mucous membranes is similar to that of lesions on the skin.

In vesicular and bullous lichen planus the vesicles or bullæ are usually subepidermal but may be intradermal. Subepidermal spaces were considered by Joseph as a distinctive characteristic of lichen planus and are frequently seen in microscopic sections even when there is no macroscopic vesiculation. These lacunæ are the result of a tearing-away process of the lower portion of the rete by edema. In fact there may be total liquefaction degeneration of cells in this area leaving epithelial chasms. In vesicular cases this process is apparently intensified and an outpouring of serum results in the formation of bullæ. Subepidermal lacunæ are more common which parallels the occurrence of real vesicles in this location.

In well-developed lichen sclerosus et atrophicus the histologic picture does not resemble that of lichen planus. In the former there is hyperkeratosis with hyperkeratotic plugging of the follicles, and atrophy of the rest of the epidermis with flattening and loss of the rete ridges. In the upper portion of the cutis there is a clear-cut zone of homogenization. Directly beneath this zone there is an infiltrate of varying degree which may in certain cases appear in a band-like formation. Darier assumed that in lichen sclerosus the original infiltrate characteristic of lichen planus had disappeared leaving behind sclerosis and atrophy. Montgomery and Hill,¹⁶ however, disagreed with this and could find no changes consistent with a diagnosis of lichen planus even in sections from the earliest lesions of lichen sclerosus et atrophicus.

Treatment

The statement that the more cases of lichen planus which one treats the less he knows concerning the preferable treatment has been made by many dermatologists. Certain cases prove difficult to manage despite the use of all modern therapeutic measures, including x-ray therapy fortified with arsenical, mercurial and bismuth salts. Since we lack knowledge of the cause of lichen planus treatment is necessarily empiric.

In discussions concerning therapy mention is frequently made of a general régime consisting of regulated physical rest, relaxation of endeavor, changes of environment and respite from worries and uncertainties. The urgency for these measures of course depends upon the neuro-psychic state of the individual patient but by most patients who are being treated in the office such advice is as a rule followed in a half-hearted, slipshod manner.

Ordinary bathing can be carried out as desired since it usually does not aggravate the disease. Soothing, tepid, colloid baths, employing corn starch, soda or oatmeal gruel, are helpful in some cases of widespread lichen planus characterized by intense pruritus.

No undisputed facts are known concerning the diet in lichen planus although some authors advise the exclusion of alcohol, tea, coffee, spices, fats, and oils. In my own practice I do not carry out any dietary regulation.

Burgess³ recently reported favorable results in the treatment of fifteen cases of lichen planus with vitamin B complex. In his series the response was especially good in acute cases, the medication exerting at times what he termed an almost specific effect. The response was much slower in chronic and hypertrophic varieties. Attempts to ascertain the possible value of individual constituents of the B complex did not show any therapeutic specificity and Burgess felt that the entire complex should be used in the treatment of lichen planus.

Opinions vary greatly as to the relative merits of arsenic mercury and bismuth. Oppenheim³⁰ believes that arsenic is most effective, Little preferred enesol (a combination of arsenic and mercury), Sonck praised bismuth, while Toomey³⁷ stated that mercury is the "sheet anchor" in the treatment.

The latter believed that arsenic was contraindicated in acute lichen planus and that arsenical preparations given by injection (sodium cacodylate) had no therapeutic advantage over those given by mouth (Fowler's solution). He advised Fowler's solution in doses of 2 or 3 drops twice daily, increasing according to tolerance to not more than 12 drops daily. The drug was to be administered in courses as follows: first course three to four weeks with a rest period of five to ten days; second course two to three weeks with a rest period of two weeks; third

course two weeks. The solution was not to be given more than three months out of every ten-to-twelve-month period.

Oppenheim praises sodium cacodylate, administering the drug daily in acute cases in doses of 0.2 gm. intramuscularly up to thirty injections. If the patient complains of tasting or smelling garlic the medication is discontinued. In chronic cases Oppenheim prefers Fowler's solution or Asiatic pills.

Huffs Schmidt stated that fairly good results were obtained in the cutaneous but not the mucosal lesions of lichen planus by means of stovarsol. There were occasional flare-ups following the drug and there seemed to be no protection against recurrences. Stovarsol may be administered in the following way: 0.25 gm. tablets are given on an empty stomach one-half hour before breakfast. As many tablets are given in a course as the patient weighs in kilograms.

From a study of twenty-five cases, Conrad, Conrad, Mapother and Weiss⁶ recently recommended bismuth arsphenamine sulfonate (bismarsen) in the treatment of lichen planus and suggested that it might be especially useful in those cases with mucous membrane involvement. The drug was given intramuscularly in doses of 0.1 gm. twice weekly along with large doses of vitamin C. There were three cases of stomatitis, several cases of puffiness of the eyelids and three cutaneous reactions to the arsenical in the series. Some patients were improved after five or six injections and apparently cured after fifteen or twenty injections while in the more chronic cases the number of injections had to be increased.

The arsphenamines have been employed by a number of dermatologists with indifferent results. Due to their toxicity they should not be used routinely in lichen planus.

Sonck³⁵ was favorably impressed with bismuth in lichen planus stating that it was cheaper than arsphenamine, more convenient and safer. Improvement sometimes appears slowly and some cases prove resistant. Sonck presented the following statistics concerning comparative treatments for lichen planus:

	No. of pts.	Recovered	Improved	No result
X-rays	73	42.5	35.4	21.9
Bismuth	29	38	41.4	20.7
Arsphenamine	17	29.4	41.2	29.4

Without doubt discussion concerning the relative merits of irradiation, mercury, arsenic and bismuth will continue for a long time.

Most authors praise mercury although there is wide divergence of opinion concerning the most useful preparation. It is quite well agreed that the mercurials are better given by injection than by mouth since by the latter route they are more uncertain, less efficient and sometimes irritating to the gastro-intestinal tract. Toomey thought that the best results were obtained when patients were treated just short of thorough mercurialization. It was also his opinion that the insoluble mercury salicylate in oil was preferable to the soluble salts such as mercury bichloride or cyanide. There is considerable difference of opinion on this point however. Bichloride of mercury is usually given daily in doses of 1/12 grain, and the salicylate once or twice weekly in doses of 1.5 grains. The salicylate is prepared as a 10 per cent suspension in a nonmineral oil. Little²¹ favored mercury salicyl arsenate (enesol) giving 2 c.c. of the drug intramuscularly every second day over a period of six weeks.

Toomey³⁷ noted that in some cases ultraviolet irradiation seemed to hasten the resorption of the lesions. Oppenheim also feels that such treatment is of value.

Although x-rays are widely used in the treatment of lichen planus and must be regarded as one of our most useful therapeutic agents, the response varies in individual cases and patients are frequently encountered whose eruptions have failed to respond to proper safe doses. In some instances, even after certain lesions have begun to involute following irradiation, new lesions continue to appear during active therapy. In general the acute and subacute varieties of lichen planus involute within six to twelve weeks of fractional x-ray therapy. Hypertrophic plaques are notably resistant to x-rays as well as other types of treatment. Paravertebral roentgen therapy has also been used in the treatment of lichen planus. For details reference may be made to MacKee's textbook.

Radium is less useful than x-rays but is sometimes of value especially in mucosal lesions.

Three other physical therapeutic agents merit mention in the treatment of hypertrophic plaques: solid carbon dioxide, the actual cautery and electrodesiccation. Such agents are worthy

of trial when other measures have failed to produce a satisfactory result.

Local applications do little more than help relieve pruritus. I usually employ an antipruritic lotion containing 0.5 per cent camphor, 1 per cent phenol and 2 to 10 per cent liquor carbonis detergens.

In summary it may be repeated that lichen planus is a difficult disease to treat and that the wide divergence of opinion concerning the relative merits of various therapeutic agents signifies that no one or combination is entirely satisfactory.

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INFECTIOUS MONONUCLEOSIS

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IN 1927, Davidsohn found that the serum of individuals who had serum disease contained a high titer of anti-sheep red cell agglutinins and hemolysins. Paul and Bunnell, in checking his results a few years later, discovered that four of their patients afflicted with infectious mononucleosis also showed the same reaction. Later Bunnell demonstrated the presence of a high titer of agglutinins for sheep erythrocytes in fifteen

cases of infectious mononucleosis, and in twenty-two cases of serum disease.

The blood serum of many normal individuals will clump sheep erythrocytes, but only in very low dilutions. This particular ability of normal serum is accentuated after the injection of horse serum because of an increase in the amount of hemolysins and agglutinins. Thus these antibodies are reacting with an antigen (sheep erythrocytes) which had no part in stimulating their development. They are therefore called

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heterophilic antibodies. Some heterophilic antibodies may be specifically removed from human or animal serum by an extraction process in which the tissues of various animals (guinea pig, horse, chicken and others) are used. This group of antibodies are those found in the serum of individuals having serum sickness, while those of the patient having infectious mononucleosis which do not show the same extractable characteristic, fall into another group. This distinguishable characteristic affords an important diagnostic laboratory procedure in dealing with infectious mononucleosis.

Another and equally important diagnostic aid in dealing with infectious mononucleosis is the proper study of serial blood smears. Characteristic monocytes as described by Downey and McKinley occur fairly early in the disease. An experienced hematologist who recognizes this "atypical monocyte" contributes greatly in arriving at the diagnosis of infectious mononucleosis.

Thus we have two very important and essential means of making the diagnosis of this condition, in the laboratory. Which is of the greater importance cannot be stated, but it can be said that both should be used. The clinical means of diagnosis is altogether too uncertain because of the protean manifestations of the disease.

The following case is an example of one in which the diagnosis was made first by the hematological picture and was later confirmed by the serological findings. The latter test was of no help early in the disease as it showed a negative response.

Case Report

A housewife, twenty-five years of age, was admitted to the hospital on November 11, 1941. She first became ill two evenings before, when she began to have chills, aches, and pains, associated with marked fatigue. On the following day her temperature was 101. During the next two days and nights she continued to have an intermittent fever which was worse in the mornings. She became very nauseated, but had severe, "hunger pains."

Physical examination showed a well-developed and well-nourished white female who was lying in bed, but appeared to be very uncomfortable whenever she tried to move. The conjunctivæ had a slight yellowish tinge. There was a moderate injection of the pharynx and the tonsils had been removed previously. The lymph nodes in the posterior cervical region were palpable and very tender. A systolic murmur at the apex of the heart was found, but was not transmitted. The heart was not enlarged. The heart rate was 100, and the blood pressure 102/48.

There was slight tenderness to pressure in the right upper quadrant of the abdomen just to the right of the epigastrium. The lower portion of the liver was not palpable.

The neurological examination was negative.

Hospital Course.—The patient was very ill for three weeks. Each night the temperature rose to 102 to 103 degrees and dropped to normal early in the morning. Chills and sweats followed each temperature elevation and these were followed by a period of marked prostration.

On November 15 the liver was found to be enlarged. The lower border was palpated 3 cm. below the costal margin.

Each afternoon she complained of a severe frontal headache which was relieved by ten grains of aspirin.

At the end of the first week of hospitalization a dry persistent cough occurred. This lasted until the third week of illness.

The spleen was palpable on November 20. The patient was not able to take fluids or food because of nausea. Five per cent dextrose solution in normal saline was given daily for seven days.

On December 6, the temperature remained at a normal level and a very rapid convalescence started. She was discharged from the hospital on December 9.

The treatment was entirely symptomatic. Vitamin B complex was given intramuscularly during the period of vomiting and dehydration.

Laboratory.—Blood culture, Wassermann, stool cultures, Mantoux, agglutination tests for typhoid and melintensis were all negative. The sedimentation rate was 21 mm. The throat culture was positive for *Streptococcus viridans*. Roentgenogram of the chest was normal.

The blood study and leukocyte counts are summarized in the accompanying table. This table also indicates the heterophile titer on two occasions.

Day	W.B.C.	Neut.	Lymphocytes	Monocytes	Atypical Monocyte	Heterophile Titer
1	8,200	54%	29%	13%	0%	1-8
2	5,150	47	28	20	1	
3	6,000	47	36	14	0	
4	5,700	55	35	8	0	
5	6,750	40	39	12	0	
6	9,250	44	39	13	0	
8	13,700	22	17	4	54	
12	7,450	17	20	2	59	1-128
18	8,400	17	58	2	23	

Comment

This case was a diagnostic problem throughout the first two weeks of the illness. The symptoms, both objective and subjective, resembled those of endocarditis, typhoid, undulant fever, acute cholecystitis and infectious mononucleosis. The heterophile negativity during the first week clouded the picture considerably. Until the appearance of the atypical monocyte in large numbers, considerable confusion as to the proper handling of the case existed.

Conclusion

1. A negative heterophile reaction should not eliminate the diagnosis of infectious mononucleosis early in the course of the illness.
2. The hematological findings were of the utmost importance in this case.
3. One should bear in mind that jaundice often occurs in this disease. Perhaps some individuals who have a transient mild attack of jaundice are unrecognized cases of infectious mononucleosis.

4. The correct diagnosis will prevent much unnecessary treatment.

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MYASTHENIA GRAVIS

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IN reporting on this interesting, though not uncommon, condition we are confronted with the relatively few cases reported and the paucity of material upon the subject that appears in medical texts. Since Wilkes, in 1877, first reported this syndrome, about three hundred cases have been reported. In books, both on general medicine and on ophthalmology, from one to three paragraphs are usually given to this disease.

The purpose of the authors of this paper is to bring the attention of practicing physicians to this disease and to a diagnostic aid which seems to be quite specific. We will also discuss the therapy of the disease without going too much into detail as to its physiology and pathology.

The word myasthenia gravis means "severe muscular weakness." Jolly, in 1895, described the syndrome as a weakness fatigue and sometimes actual wasting of the muscles without any pathologic changes that were demonstrable microscopically. In patients suffering from this disease, repetition of movement quickly induces fatigue. While any of the voluntary muscles of the body may be affected, it tends to affect the muscles which are used most commonly and one might also say the voluntary muscles which are used involuntarily. We refer to the extraocular muscles, the muscles of the face, and the muscles of deglutition and speaking. Most often the manifestations appear in the third and fourth decades of life, though in our series they appeared in the

age period from twenty-one to sixty-seven. In older people the symptoms are sometimes diagnosed as a "stroke." When seen in the younger age group, the disease is usually more severe. The exact etiology is not known. Various authors ascribe it to the persistence, hyperplasia or even a tumor of the thymus. Others feel that the disease may possibly be of nervous origin, or that the fatigability is due to faulty metabolism of the muscle cells.

The diagnosis is always spoken of as easily made and possibly this is so, but it is also often passed over, for there may be remissions of the symptoms and thus the diagnosis is missed. Most of the early symptoms are referable to the eye and jaws. These patients, often first seen by the general practitioner or internist, are frequently referred to the ophthalmologist because of this condition. He must be alert to recognize the disease. Some of these unfortunate people have had numerous refractions with no benefit because their disease, myasthenia gravis, was unrecognized.

A history of cold or grippe, as noted in our cases No. 9 and No. 14, sometimes precedes the onset of symptoms or aggravates the same, although this may be forgotten by the patient.

The relationship of myasthenia gravis to pregnancy is one of interest, and was discussed by Viets, Schwab and Brazier²² in a recent article. Our case reports No. 8 and No. 13 are extremely interesting, both as to the occurrence or the increase in symptoms following delivery.

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To properly treat these patients an early diagnosis must be made. The disease is progressive and, though characterized by remissions, may terminate fatally.

Inasmuch as the cranial nerves supplying the muscle groups are most often affected first, the resultant symptoms are here presented. Two groups of symptoms are noted: (1) the ocular; and (2) those referable to other muscles or muscle groups. Among the first symptoms is diplopia. It has been estimated to be present as the earliest symptom in 50 per cent of the cases (in our series, 80 per cent). This is confusing to the patient and sends him to the oculist. The cause is a weakness or partial paresis of the extra-ocular muscles. This weakness is acknowledged to be due to neuromotor dysfunction and not a contracted state of the musculature.

Abrahams¹ found in this type of diplopia an irregularity in the amount and quality of heterophoria, transient in nature, an irregularity in induction which was unusually high, and a closeness of the images. He does not think it should be called myasthenia, that is, a true muscle weakness. These transient tropias or drifting phorias are relieved by prostigmine in some cases. Such symptoms are not found in other conditions and hence are of definite diagnostic value.

With the presence of these symptoms, however, there is usually no change in the visual acuity or refractive error, nor is there any change in the pupillary reactions or accommodative power, which are unaffected by prostigmine or other similar therapy.

Ptosis of the upper lids, one or both, is the next most common symptom, and varies in intensity. It is present in about 80 per cent of the cases (in our series about 70 per cent). It can easily be determined by measuring the width of the palpebral fissure with a pocket ruler. In early cases ptosis is not present in the morning, but comes on with fatigue and is overcome in the earlier stages of the disease by rest.

A routine eye examination, taking the vision, tests of forehead movements, refraction and muscle tests, will bring out the diagnostic points. Other than the positive findings given above, tests, such as of the perimetric fields, ophthalmoscopy, etc., reveal normal findings.

The next most common involvement is that of the muscles of mastication. Here, food may lodge in the cheek and the patient easily and

obviously tires upon chewing. In close connection is the weakness of the muscles of deglutition and phonation, so that the patient complains of difficulty in swallowing and has a nasal twang to his speech. Later, it becomes increasingly difficult to talk. In some cases there is weakness of the vocal cords, and in others food is regurgitated and this may be dangerous. Later still, the head may droop and wobble and become unsteady; here you may even see the patient holding up the head or lower jaw with the characteristically sad expression of the face.

In addition to the cranial nerve involvement affecting the muscles just mentioned, there is the second group referable to other muscles or muscle groups. Here practically any voluntary muscles in the body may be affected. For example, it may be very difficult for the patient to comb the hair; the act of lifting food to the mouth in ordinary feeding may be almost impossible to perform. These simple acts become fatiguing work, and it may be extremely difficult for the patient to walk upstairs. General muscular weakness, especially of the arms or legs as in crossing them or stepping up, comes on later.

One of the most serious symptoms is dyspnea as a result of fatigue of the respiratory muscles which may, if progressive, become fatal.

The characteristic and outstanding symptom of myasthenia gravis is the variation in degree of the muscular weakness from day to day and especially at different times of the day. An extremely important lead is the statement that the patient feels best when arising and rapidly fatigues as the morning goes on and that the symptoms gradually become worse with slight fluctuations during the day. Only the motor system is involved as is shown by the total absence of sensory symptoms and findings.

The diseases and pathologic conditions which are most likely to cause confusion and error in the diagnosis of myasthenia gravis are post-encephalitic parkinsonism, chronic nervous exhaustion, progressive muscular dystrophy, progressive muscular atrophy, psychoneurosis, poliomyelitis, cranial nerve paresis (whatever the underlying pathology), pernicious anemia, multiple sclerosis and central nervous system syphilis. However, such confusion should not persist for long as the findings and course of the disease are typical. Some of our cases illustrate the similarity of symptoms and the difficulty of diagnosis. All of

this first group were examined prior to the advent of the prostigmine test which, when used, simplifies the diagnosis, as will be noted later.

Case 1.—Mrs. J. P., a housewife, aged forty-six, was first seen in 1917 and many times thereafter with minor ailments and numerous operations. Menopause started in 1928, when she also had an attack of herpes zoster and neurosis. She complained of loss of strength in the legs and marked general weakness. This gradually improved, but later she had difficulty in swallowing and a feeling of swelling in the throat. A tentative diagnosis of globus hystericus was made. During the next year there was gradual loss of weight, progressive general weakness and homonymous diplopia. The blood Wassermann test was negative. A year later a partial paresis of the left external rectus muscle occurred with general weakness and psychoneurosis. There was a mild refractive error and presbyopia was present with poor convergence, but the vision, perimetric fields, fundi and Baranay tests were negative. Diagnoses of Parkinson's Syndrome, chronic nervous exhaustion, multiple sclerosis, syphilis and myasthenia gravis were considered. Progressive failure occurred and the spinal fluid showed a positive Wassermann. The patient died on March 18, 1938 with a diagnosis of central nervous system lues and cerebral tumor, which was confirmed by autopsy.

This case illustrates the difficulty sometimes encountered in the differential diagnosis and the fact that syphilis may simulate myasthenia gravis, particularly when progressive weakness, diplopia and dysphagia are present.

Case 2.—Mrs. J. A. H., a housewife, aged twenty-three, was referred to the Clinic, November 30, 1936.

She had had nystagmus and diplopia with a history of previous sixth nerve palsy. There was slight ptosis of the upper lids and a crossed diplopia present. General weakness and difficulty in walking were noted. The fields showed superior quadrant defects, enlarged blind spots and absolute central scotomata. There was partial third, sixth and seventh nerve paralysis of the left eye and poor vision. A diagnosis of multiple sclerosis was made and she was placed on typhoid shock therapy.

Two years later she was improved, although she had had one remission. She was last seen two years ago and there was slight ptosis and nystagmus, also definite contraction of the color field and cæco-central scotomata continuous with the blind spots, and temporal pallor of the discs. The diagnosis was multiple sclerosis.

The differentiation between myasthenia gravis and multiple sclerosis is often confusing as illustrated above. Both may have ptosis, diplopia and weakness and be characterized by remissions. The neurologic signs, such as nystagmus, scanning speech and intention tremor, and fields and fundus changes are most characteristic of multiple sclerosis, though they too may at times be absent.

Case 3.—Mrs. G. P., a housewife, aged thirty-nine, was first seen on December 20, 1936.

Her complaint was diplopia which had been present for two weeks. She gave a history of one attack five years before; she then improved but now had a gradually developing general weakness. Blood and spinal fluid Wassermann tests were negative. The physical examination was negative except for absence of the superficial abdominal reflex on the left side.

She was seen five years later. She had marked ptosis of the eyelids, extra-ocular muscle paresis, normal vision, but the fields were contracted and there were enlarged blind spots. Diagnostic impressions were myasthenia gravis, multiple sclerosis or bulbar lesion. Provocative tests were made, but were not conclusive. There was a possibility of myasthenia gravis, although a central nervous system lesion seemed more probable.

Lesions of the central nervous system, such as bulbar palsies, encephalitis, and basal pachymeningitis are also confusing, but the progressiveness and permanency of their findings, the definite neurologic changes and the absence of reaction to the diagnostic test largely rule out myasthenia gravis.

The diagnosis of myasthenia gravis is important. There is a definite treatment which is of great value and in all fairness to the patient, myasthenia gravis should not be considered a hopeless disease. In order to diagnose the disease one must always remember the possibility of its existence in patients complaining of symptoms and signs of the type and nature which we are attempting to bring out in this paper. A complete and accurate history and examination with special emphasis on the neurologic examination are of the greatest importance. In 1935, Viets and Schwab proposed the use of prostigmine as a test for myasthenia gravis. Their initial report has been amplified by them several times. We believe the test is of so much value that we are incorporating the actual procedure into this article. There are other tests, such as the electromyographic and ergographic studies, which require special apparatus and are not available to the general practitioner. The prostigmine test can be used by anyone who uses ordinary care.

The prostigmine test as used by us consists of the use of prostigmine methylsulfate and atropine sulfate. It is prepared by Hoffmann-La Roche, Inc., so that 1 c.c. of the diagnostic material contains 1/40 grain (1.5 mg.) of prostigmine methylsulfate and atropine sulfate 1/100 grain (0.6 mg.). The diagnostic test chart whereby objective improvement and subjective improvement are

noted at intervals of ten minutes is a convenient and quite accurate method of determining response to the material injected. The publications by Viets and Schwab¹⁷ and the directions in the test set as made up by Hoffmann-La Roche, Inc. make the test one of comparative simplicity which can be used in the office or hospital by any physician. We have found it of equal value, both in determining the presence of myasthenia gravis and also in ruling it out.

Due to the marked change in symptoms of patients with myasthenia gravis after the prostigmine injection, some observers feel that the need of scoring by making several observations is unnecessary. This is true, perhaps, in three-fourths of the myasthenia cases, but in the non-myasthenic group, particularly in chronic patients, suggestion plays a large part and they may score high enough on the subjective symptoms to make a diagnosis of myasthenia possible unless several tests are made. Since the test can be completed in an hour, and since it requires no elaborate apparatus, we feel that the formula here suggested is so simple that any physician can carry it out. We agree with them that the long period of observation formerly used is impractical, and in our clinic it has been found unnecessary.

It is to add to the cases heretofore reported that we present our series with comments that may be of value in both diagnosing and treating subsequent patients encountered with this syndrome.

Case 4.—Mrs. M. M., a housewife, aged twenty-one, was first seen in September 1929.

Three months before she had had twitching of the hands and difficulty in keeping the eyelids open. Later, there was difficulty in the use of the facial muscles and in swallowing and eating. This increased and she reported because of this trouble and also because of trouble with walking. When drinking water, it was regurgitated and often caused coughing.

Upon examination the patient talked indistinctly. There was slight ptosis of the upper eyelids and difficulty in swallowing fluids. Examination of the ear, nose and throat was negative. One week subsequently she developed a pharyngeal paralysis. Spinal puncture and other eye findings were negative. A tentative diagnosis of a toxic bulbar paralysis or myasthenia gravis was made.

The patient was removed from the hospital without consent and no further report was obtained.

This might well have been a case of myasthenia gravis, though, of course, bulbar palsy could not be ruled out due to an insufficient period of observation.

Case 5.—R. N., a retired farmer, aged sixty-four, was seen in August, 1933.

He complained of difficulty in getting out of bed and weakness of the left arm. He had been seen previously since 1923. He had had anorexia, cough and dacryocystitis of the right eye. At this time he had an intention tremor of the hands and limbs, sluggish eye reflexes and slight ptosis of the upper eyelids. The condition remained the same at two subsequent visits. A diagnosis of myasthenia gravis and paralysis agitans was made.

Here it was well to think of myasthenia gravis and not hurriedly call it a stroke.

Case 6.—C. L. B., a farmer, aged thirty-four, was seen in April, 1934.

He complained of difficulty in speech which started in 1930, his tongue tiring and speech becoming thick. Three years previously he had noted that the eyes tired and the lids drooped on reading. Two years ago he had spells of diplopia and of late noted weakness of the extremities on exertion.

Examination revealed a staring expression and thick voice. The general findings were negative except exaggerated cremasteric reflex and knee jerks with an intention tremor of the tongue and hands. A working diagnosis of myasthenia gravis or postencephalitis Parkinsonian Syndrome was made. The patient was not seen again and no further conclusions were reached.

Case 7.—H. S., a male, aged forty-three, a Bertillon expert, was seen in April, 1933.

He reported because of blurred vision and diplopia. He had been seen from time to time from 1921 for other causes including an appendectomy and refraction.

Upon examination a diplopia of the crossed type was present, and the perimetric fields were somewhat contracted and slightly irregular. Except for exaggerated knee jerks, the general examination was negative, as were the blood Kahn and Wassermann. An upper motor nerve lesion was thought of and also encephalitis. One month later he still had diplopia, photophobia and some hoarseness. A central nervous system lesion was ruled out by the neurologist and a diagnosis of myasthenia gravis made.

He was placed on treatment with ephedrine and improved. He used prisms which helped, but he later discarded the same. The general condition improved, but he still had diplopia. He moved away and was not seen again.

This is a case of myasthenia gravis with remissions. All other findings, x-ray examinations, etc., were negative. Inability to follow up this case is regretted.

Case 8.—H. W., a farmer, aged fifty, was seen in December, 1933.

This patient came in because of poor vision in the left eye, headaches and diplopia. Later he was found to be myopic with an amblyopia exanopsia of the left eye. A ptosis of the lid had been present for years. Physically he was more tired than previously, though no definite weakness was made out. Other findings were negative, though glasses improved his vision.

He was placed on ephedrine and the diplopia improved. The diagnosis was myasthenia gravis.

Case 9.—M. D. W., a male teacher, aged forty-seven, consulted the Clinic in December, 1933, because of throat trouble; that is, after speaking he was tired and had difficulty with his speech. Of late he had had trouble with swallowing and eating; food lodged in his cheek. The past history disclosed that this had started six months previously, but he had had transitory diplopia three years before and some ptosis six months before. He had tried glasses and chiropractic treatments with no help. He thought that his present trouble had started with a cold three months before consulting us. At times he had had to hold up his jaw as it became tired.

Examination revealed marked nasal speech and trouble in phonating. There was partial ptosis of the eyelids and diplopia with weakness and inability to turn the eyes to the right. The general physical examination was negative. The spinal fluid was negative as were the vision, visual fields, fundi and refraction except for presbyopia. He definitely improved under ephedrine and glycine treatment. The diagnosis was myasthenia gravis. Here is our first case which apparently followed or was aggravated by a cold.

Case 10.—Mrs. H. J. L., a housewife, aged forty-seven, was seen in October, 1935.

She came in complaining of difficulty in swallowing which was first noticed about four months before, following the delivery of a full-term infant. This had gradually become worse. During the past month she had had very marked difficulty in swallowing. She had been able to swallow only liquids and these only occasionally. About one month previously the dysphagia had become very marked and was accompanied by difficulty in talking, drooping of the upper eyelids and a diplopia. Since her pregnancy she had tired very easily on exertion. For the past two days the right upper eyelid had been much worse, so that she could scarcely open the eye at all without lifting the eyelid with her finger. At no time had she had any pain or any headache.

The past history revealed that this patient was refracted here nine years ago. She had had no complaint previously.

Examination revealed ptosis of the lids, nearly total loss of movement of the extra-ocular muscles with resulting homonymous diplopia, marked difficulty in talking and weakness of the muscles so that she had to hold up the lower jaw with her hand. The vision, fields, pharynx and the fundi (except for slight vessel tortuosity) were negative. The general physical examination including Kahn and Wassermann was negative except for slight increase in tendon reflexes. The diagnosis was myasthenia gravis.

She was placed on ephedrine treatment and showed marked improvement within ten days and for a month. She then discontinued the treatment and consulted a chiropractor and again became worse. She reported at the Clinic four months later and was put on eph-

edrine and glycine and again improved. This case is also significant because her trouble definitely followed a recent pregnancy as noted above.

Case 11.—A. C., a farmer, aged sixty-seven, was seen in February, 1934.

This patient came in complaining of difficulty in speech. He stated that his present illness began eight months previous. He had been seen with different complaints off and on since 1917. It was now hard to understand him and he had great difficulty in speaking. For the past month he had had trouble with liquids getting in his windpipe.

Diplopia, dysphagia and dysmimesis were present. His general physical examination was negative except for diabetes mellitus. The vision was fair; fundi showed lens opacities and retinal arteriolar sclerosis. The Kahn and Wassermann tests were negative. Diagnoses of Parkinsonian Syndrome, multiple sclerosis and syphilis were ruled out. The patient was treated with ephedrine and improved. Diagnoses of myasthenia gravis, diabetes mellitus and arteriosclerosis were made.

Case 12.—A. L., a farmer, aged fifty-two, was seen in March, 1936.

He complained of blurred vision and diplopia for the past year and a half. He had been seen by us two years previously and had been given a prescription for presbyopia. There was no diplopia at that time. He had been seen for irrelevant complaints for the past twelve years. At one time he had had ptosis and a transient glycosuria.

Ptosis and diplopia were present. Perimetric fields showed a slight enlargement of the blind spots, but vision was normal and the fundi were negative. General examination was negative. Encephalitis and myasthenia gravis were considered. Three months later, he had weakness of the hands and legs and still had ptosis and diplopia. Later he had trouble with talking and eating and had definite weakness of the extraocular muscles. He was treated with ephedrine. The diagnosis was myasthenia gravis.

Case 13.—Mrs. A. R. R., a housewife, aged twenty-three, was seen in January, 1938.

She complained of diplopia which had been present for a year and a half and was not helped by prisms. She had previously been here for refractions and other conditions, with no evidence of this complaint. Her general health was good. Of late she had had ptosis and complained that food lodged in her cheeks; she was also having trouble with her voice and a general muscular weakness and tiredness. She had been delivered one month previously. Although she had had diplopia and some trouble with her jaws, this was not so marked prior to or during her pregnancy. However, one month following the delivery, all of the symptoms increased and she became progressively worse up to the time we saw her.

The ptosis was so marked that she had to tilt her head backward to see. Diplopia was present. The ocular movements were poor, there being no full muscle

excursion in any direction. Her vision was fair and the fields and fundi were negative. The general examination was essentially negative. The diagnosis was myasthenia gravis.

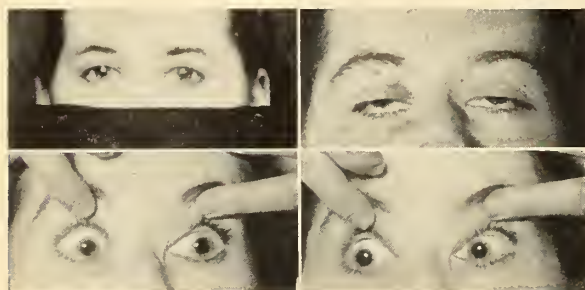


Fig. 1. (upper left) Photograph of eyes prior to onset of disease.

Fig. 2. (upper right) Photograph showing ptosis of eyelids during myasthenia gravis.

Fig. 3. (lower left) Photograph showing position of eyes on attempting to look to the left.

Fig. 4. (lower right) Photograph showing position of eyes on attempting to look to the right.

She was placed under treatment with ephedrine sulfate grains three-fourths three times daily, and showed marked improvement within two weeks. She then returned to her referring physician. Note the photographs taken before and after the onset of myasthenia gravis (Figs. 1, 2, 3, and 4).

This is the second case in our series which showed a definite increase in symptoms soon after pregnancy, which confirms Viets and Schwab's observation that though the symptoms may not show prior to pregnancy yet they are increased after delivery.

Case 14.—A. W. S., a salesman, aged forty, was seen in September, 1936.

This case illustrates the possible rôle of infection in acute exacerbation of symptoms. This man became ill on September 10, 1936, when he noted very suddenly that he was very tired and weak and was hardly able to walk in the afternoon and evening. He felt considerably better on arising in the morning. On September 16 he had a severe, shaking chill, but he was not seen by a physician for several days and when he was seen, his temperature was normal. This is significant of an acute cold or grippe. The patient attempted to do his work as a salesman and had to drive considerable distances. He fatigued so rapidly that by afternoon it was occasionally necessary to carry him out of the car to his residence.

Complete physical examination and laboratory examinations (including spinal fluid) revealed only marked weakness of the voluntary muscles of the hands and arms. The findings were those of weakness without true paralysis. Sensation was always normal. Absence of ocular signs and symptoms was especially noted. The therapy consisted of ephedrine sulfate and amino-acetic acid with definite improvement.

He returned to work about January 1, 1937, and continued to take the medication for approximately

two years, since which time he has felt very well. There is no evidence of the previous symptoms and findings, and he has taken no medicine. The diagnosis was myasthenia gravis.

This case illustrates: (1) that it is not always necessary to have eye findings in a case of myasthenia gravis, nor do they necessarily precede the general muscular weakness, although they usually do; (2) that the symptoms were aggravated by an acute infectious episode.

From a review of the literature and from our own experience, it appears that the response of a particular patient to one form of therapy or even to a combination of different therapeutic agents varies. Reference should be made to these various agents. Edgeworth^{5,6} has reported on the use of ephedrine and also on the use of amino-acetic acid, and Boothby² on the treatment with glycine. Physostigmine was introduced by Walker²³ who also introduced prostigmine. The oral administration of prostigmine as brought out by Everts.⁷ Considerable further work is being done by these authors and also by Harvey and Whitehill¹⁰ who reported on the use of prostigmine both as a diagnostic aid and for therapy. The use of guanidine hydrochloride by Minot et al¹³ gives good results in the hands of some.

That care must be used in the oral administration of prostigmine is very apparent from the report of Goodman and Bruckner.⁹ Perusal of their article leads to the conclusion that one must be certain myasthenia gravis is present before prostigmine is used orally or otherwise in the treatment. Furthermore, the difference in the reaction to prostigmine in the body of a patient having myasthenia gravis compared to one not having the disease indicates a definite, distinct and different physiologic and chemical reaction.

Eaton⁴ of the Mayo Clinic has summarized very well the present therapy of myasthenia gravis in regard to the use of prostigmine, ephedrine, guanidine and potassium salts and in his conclusions states that for the average patient the oral administration of prostigmine bromide is his basic treatment.

In our treatment of these interesting cases we have gone through a similar evolution as to drug therapy. We now agree that no patient should be treated for myasthenia gravis without first having diagnostic tests made.

A striking point in the therapy of patients with this disease is the distinctive individual reaction

to each therapeutic agent or to a combination of therapeutic agents. Likewise, the optimal dose of a single drug or combination of several drugs varies considerably. Each patient must be considered separately and no established rules as to dosage will fit a large group of patients.

The patient must realize the type of affliction he or she has and must live within his or her limits of physical accomplishment. Every effort should be made to avoid efforts which produce fatigue. Rest at frequent intervals during the day is extremely important and is, of course, obligated by the more severe phase of the disease. Frequent feedings of high caloric value in small amounts may be indicated. It may be necessary in some instances to use a very highly puréed diet as the danger of aspiration and pneumonia must always be considered. The use of tube feedings may be required. Good general nursing care is of great importance, of course.

There are many simple helps both for the improvement and comfort of the patient while undergoing treatment. For the relief of distressing diplopia an eye patch over one eye may be used, or spectacles with one dark or frosted lens therein. A simple method for the patient who wears glasses is to paint one lens with clear nail polish. Prisms may be tried, but in our hands they were not very successful.

In our experience amino-acetic acid and ephedrine have been of definite value. One point that must be remembered is that the cost is a factor with some of our patients and medication which is expensive is, therefore, not available to some of them. When such is the case, the use of the less expensive ones would seem desirable, as they are much more likely to be continued and thus produce the desired results.

We have not had much experience with the use of guanidine and the potassium salts therapy and cannot comment on these two agents.

Prostigmine bromide by the oral route is of definite value and the cost is not excessive. The dosage varies again in each case, from the smaller dosage of two of the 15 milligram tablets daily to twelve to sixteen in the more serious cases, distributed throughout the twenty-four hours. Atropine may be needed to overcome some of the drying effects of the prostigmine. Prostigmine methylsulfate may be needed subcutaneously or intramuscularly, especially if the more serious types of symptoms occur.

In our experience at the Clinic, glycine and ephedrine have been of definite value and should at least be given a therapeutic trial. The dosage of glycine must be quite large. The dosage of ephedrine sulfate will again vary from $\frac{1}{8}$ to $\frac{3}{8}$ of a grain two to three times a day. Like prostigmine, it is probably best if comparatively small doses are used at more frequent intervals. It has an added advantage of not being too costly for the patient.

We have at present very definite therapeutic agents for the relief of and possible cure of myasthenia gravis. These are not costly and surely abolish the former hopeless outlook for the sufferers from this disease. As heretofore noted, they must adopt the proper living regimen.

It is obvious that to help these patients they should be seen at frequent intervals and remain under close competent medical care. Similar to other diseases with remissions, they may get discouraged or with improvement, think they are cured and then neglect their care.

Conclusions

1. We have endeavored to show that myasthenia gravis is not an uncommon disease.
2. Eleven cases have been reported to add to the literature.
3. In two cases the relationship of myasthenia gravis to pregnancy is brought out.
4. The definite diagnostic value of the prostigmine test is noted.
5. The present treatment is reviewed and our suggestions presented.
6. Cases of myasthenia gravis are no longer considered hopeless.

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PORTAL CIRRHOSIS

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THE liver is the largest organ in the body, being composed anatomically and functionally of two types of cells, hepatic and Kupfer. The hepatic cells are arranged in cords radiating from the hepatic veins like spokes from cylinders, thereby forming a mantle about the hepatic venous tree. Into this mantle interdigitate the branches of the portal vein and hepatic artery, running into the sinusoids between the hepatic cords. The sinusoids are tributary to the hepatic vein. The hepatic artery carries 25 per cent of the organ's total blood supply and almost all of its blood oxygen. The portal blood has a low oxygen saturation and probably gives up little oxygen to the liver. For this reason, necrosis of the hepatic cells quickly follows ligation of the hepatic artery. The nutriment carried by the portal vein, however, is equally essential to the liver cells.

The Kupfer cells play little part in our discussion. They line the sinusoids and, like other cells of the reticulo-endothelial system, form bilirubin from broken-down hemoglobin for excretion in the bile. The bile capillaries run in the liver cords towards the periphery of the mantle, emptying into the bile ducts in the portal spaces.

The functions of the hepatic cells are manifold and incompletely known. Among the activities essential to our discussion are the following:

1. Storage of carbohydrate as glycogen. Adequate glycogen content is essential to liver health.
2. Deamination of amino acids arriving from

the gut to form urea and fatty acid residue with further oxidation of the latter to available carbohydrate.

3. Maintenance of normal blood sugar level by conversion of stored glycogen.

4. Synthesizing or maintaining normal blood levels of heparin, prothrombin and possibly plasma proteins.

5. Storage of vitamins and antipernicious anemia factor.

6. Conjugation of glycine and taurine with cholic acid to form the bile acids and secretion of the sodium salts of these in the bile.

7. Excretion of bilirubin from the sinusoids into the bile capillaries.

8. Re-excretion in the bile of the urobilinogen and bile salts absorbed from the intestinal tract.

9. Excretion of cholesterol.

10. Storage of fat and oxidation of stored fats in the absence of glycogen.

With functions so manifold and vital, it is only natural to suppose a great reserve of tissue. Blood does not flow constantly in all the sinusoids but goes through periods of surge and rest, reminding one of the flow through glomerular capillaries of the kidney. Whipple found in poison experiments that destruction of two-fifths of each lobule in the dog could be repaired in a few weeks, the uninjured cells multiplying by mitosis and replacing the necrotic cells within the original reticular network, which is unaffected by liver toxins. The integrity of the portal blood supply is necessary for such regeneration, a significant point in this discussion of cirrhosis.

The regenerative capacity of the liver in the presence of portal cirrhosis was appreciated by MacCallum in 1904 when he drew a clear picture of the pathologic processes involved. He described gradual necrosis of liver cells, sometimes accompanied by fatty metamorphosis, with some regeneration by multiplication of adjacent uninjured liver cells, and replacement of lost tissue by outgrowth of connective tissues from the portal spaces. In other words, the mantle of radial cords about the hepatic veins is irregularly destroyed and incompletely repaired. Bile ducts proliferate in the portal spaces to connect with the remaining bile capillaries and maintain bile secretion. He pictured this as a gradual process of necrosis proceeding along with regeneration until the hepatic vein mantle becomes incomplete, leading to a microscopic picture of regenerating masses of liver cells without a central vein or with an eccentrically located central vein, and without lobular arrangement of the cords. By being denuded of the cellular mantle in places, the central veins come to lie in the portal spaces alongside the portal veins. MacCallum further described polymorphonuclear and round cell infiltration of the dying liver cells and mitotic figures in the adjacent healthy ones and related these to activity of the destructive process. He likened this to glomerulonephritis by saying that in the acute case the destruction of many epithelial cells stimulates the production of mitotic figures in those that are left, while, although regenerative changes are certainly present in chronic nephritis, mitotic figures are no longer found. With passage of time and progress of the cirrhosis, he observed contraction of the increased portal scar tissue with compression of some of the bile ducts and portal vein radicles resulting in jaundice (rather late) and portal obstruction with attempted establishment of collateral circulation between the portal and systemic venous systems.

Grossly the cirrhotic liver may be large or small, according to the amount of fat or fibrous tissue it contains and the degree of destruction of hepatic cells. The surface may be smooth or finely or coarsely granular. If it is granular, the depressions are vascular scar tissue and the elevations groups of surviving liver lobules, hypertrophied through regeneration. From clinical observations it is known that many of these livers are large in the early stages and shrink

later on, presumably because of disappearance of fat and contraction of scar tissue. Other livers remain larger than normal due to permanent overgrowth of fibrous tissue. McCartney showed that in the earlier decades active cirrhosis is accompanied by hypertrophy of the liver and in later decades by atrophy, these terms referring to weight. This agrees with the known shrinkage of the normal liver with age.

Related to portal cirrhosis and almost indistinguishable from it pathologically is Mallory's toxic cirrhosis, or healed yellow atrophy, described in 1911. This is comparatively rare, because yellow atrophy is highly fatal. However, the same processes take place as in portal cirrhosis: fatty degeneration and necrosis of liver cells, some regeneration by mitosis of adjacent uninjured cells along the unharmed reticular skeleton, inflammatory reaction in dead cells, formation of compensatory regenerating nodules, and shrinkage and fibrous tissue replacement of unregenerated cells. The main difference between portal and toxic cirrhosis is that the former is the result of a gradual intoxication while the latter results from repeated, well-defined, more severe insults with production of jaundice and bile in the urine. Cases of toxic cirrhosis have resulted from cinchophen and sulfanilamide. Some victims of such poisoning have not survived the atrophy to develop healing and cirrhosis. As a result of repeated insults, sometimes only two or three, the liver finally assumes a gross appearance similar to that of the more chronic portal cirrhosis except for more pronounced nodular hyperplasia. Children are more often victims of this type than of portal cirrhosis.

The etiology of portal cirrhosis differs in detail from case to case, but evidence from animal experimentation and preponderance of the disease in poorly fed people point to nutritional deficiency as a necessary predisposing cause. Alcohol has been incriminated with a good deal of justice, but it alone cannot cause cirrhosis in the presence of a good nutritional state of the liver. In the experience of pathologists fatty metamorphosis is the more common hepatic change in alcoholics. This is to be interpreted as a state of poor liver nutrition which will progress to cirrhosis if other liver injury is added to the continued poor nutritional state. Multiple neuritis, beri-beri, pellagra-like dermatitis and

other deficiency diseases have been found to co-exist with cirrhosis in the alcoholic poor, although it must be remembered that advanced cirrhosis itself reduces the assimilation of vitamins by the liver. Recently Rich and Hamilton produced portal cirrhosis in rabbits by a synthetic high vitamin diet lacking in yeast. Von Glahn and Flinn reported that yeast protected rabbits to some extent against developing cirrhosis from lead arsenate poisoning. The incidence of cirrhosis is high in Switzerland and goiterous districts of the United States, suggesting that depletion of liver glycogen by hyperthyroidism deprives the liver of normal protection against causative factors in cirrhosis. Experimentally, combinations of chemical poisons, such as phosphorus and alcohol, and chloroform and bacteria, have caused cirrhosis in animals. Moon and others have isolated streptococci from livers with active cirrhosis. Whatever the directly exciting cause, one can assume that there necessarily is a basic nutritional deficiency operating over a long period of time.

McIndoe of the Mayo Clinic made some illuminating studies of the altered architecture of the cirrhotic liver. To demonstrate normal conditions he injected the vessels of normal livers and made celloidin casts. These give a picture of regularly interlocking terminal branches of the portal and hepatic veins by way of the sinusoids. These branches are everywhere equidistant, separated by the width of the hepatic vein mantle of liver cords. In the cirrhotic liver, prepared the same way, he was able to show great defects in this mantle, allowing the hepatic veins to lie alongside the portal veins in the portal spaces, and also to show large spaces in the cirrhotic liver practically devoid of circulation. By injection through the portal vein he was unable to reach the sinusoids of the new hyperplastic nodules but he could reach some of them by injecting the hepatic artery. In substance, he found the new nodules were cut off from the portal blood supply by many small Eck fistulae taking the blood directly into the hepatic veins. Hepatic insufficiency, when it occurs, then, is usually not caused by loss of liver cells but by diversion of the portal blood from them through the intrahepatic shunting referred to above and the extrahepatic collateral circulation.

If the factors favoring continued liver damage continue, it is evident that the patient is doomed.

Fortunately, the process stops and becomes latent in some cases. McCartney reported 35 per cent of a number of cirrhosis cases seen at autopsy as latent, meaning those with no history of symptoms, no clinical diagnosis, and no necropsy evidence of ascites, hemorrhage, or esophageal varices. Obviously this means that some of these livers heal to all intents and purposes or that collateral circulation develops so uniformly that no local overload develops. McCartney's latent cases, on the whole, show histologically a milder grade of cirrhosis than the active cases with a history of symptoms. Enlargement of the spleen was less frequent in his latent cases. He found latent cirrhosis more frequent in males than females.

This high incidence of latency suggests that there are no presenting symptoms in early cirrhosis. This is borne out by clinical experience. Mild digestive disturbances and slight weight loss may bring the patient to the doctor, but the disease must be considered fairly advanced even then. Physical findings may offer a little help. Jaundice occurs in about 50 per cent of cases but is late because it results from intrahepatic obstruction of the bile ducts by contracting scar tissue. A transitory signal jaundice has been described as occurring at the onset of the disease in some cases, reminding one of the initial hepatitis described for toxic cirrhosis. The liver may be enlarged in early cases due to fatty infiltration. The spleen may also be palpable, but this signifies portal obstruction or a lowered serum albumin. Visible distention of abdominal veins is usually present only with ascites, but in a suspected case, infra-red photography may detect early collateral circulation. Esophageal varices, if detectable by x-ray, signify a rather advanced cirrhosis. Hemorrhoids may also be present but rarely are large if due only to collateral circulation resulting from cirrhosis. Spider angiomas are truly helpful if found in the absence of a family history of them. They are often the earliest physical findings, consisting of bright red lesions with central points from which radiate fine hairlike branches a centimeter in length. They are usually seen on the skin of the face, arms, fingers, and upper trunk.

Routine blood examination may furnish a lead in moderately advanced cases in that anemia is common. It may be of the pernicious type with the difference that free hydrochloric acid may be

found in the gastric secretion. It may undergo spontaneous remissions or respond to liver therapy. The anemia is never so severe as pernicious anemia, probably because the kidneys, too, have storage capacity for the intrinsic factor, but its severity is proportional to the extent of liver destruction. Since iron assimilation is usually faulty, the anemia may be hypochromic. However, macrocytosis and hypochromia have likewise been explained on the basis of lowered plasma albumin with imbibition of water by the corpuscles due to lowered osmotic pressure of the plasma.

Among the special blood chemistries, plasma protein determinations promise the most. Plasma albumin is diminished and globulin elevated in a great majority of all types of liver disease, especially cirrhosis. The liver normally stores a great deal of albumin or albumin-producing substances. Apparently it is unable to maintain adequate plasma albumin values when damaged. The globulin increases in a compensatory manner, making the total protein value normal in most cases. Qualitative changes in this globulin fraction are responsible for the most delicate tests we have for liver damage, Hanger's cephalin-cholesterol and Gray's colloidal gold flocculation tests.

The former is fairly simple. Normal serum will not disturb the cephalin-cholesterol colloidal system, but serum in hepatic disease produces flocculation of lipoids in from twenty-four to forty-eight hours.

Gray says that the gamma globulin is increased in liver disease, accounting for the parietic type of curve he gets in his serum colloidal gold test. The sensitivity of this test is quite amazing. In hepatico-lenticular degeneration, otherwise known as Wilson's disease, a hereditary neurological affliction coming on early in life, there is good evidence to indicate that cirrhosis precedes the neurological involvement in every case. Yet, the cirrhosis is silent at first, and the neurological symptoms bring the patient to the doctor. Sweet, Gray and associates in Chicago reported uniformly positive results with the colloidal gold test in these subclinical cases of cirrhosis.

The favorite at the Mayo Clinic, and the simplest of all, is the bromsulfalein test. Five mg. of the dye per kilo of body weight is injected intravenously, the blood serum collected after an hour, alkalinized, and compared with standards and normal serum. A retention of over

4 per cent is abnormal, the great bulk of the dye being excreted by the liver in the bile. This test is a good routine procedure in the absence of jaundice but lacks the sensitivity of the other two mentioned.

Thus, the diagnosis of liver damage early is seen to be largely a chemical problem and one to be undertaken largely upon suspicion aroused by digestive disturbances not otherwise explained or in the presence of multiple vitamin deficiencies or alcoholism in the poor. Diagnosis of cirrhosis in the advanced stages is purposely omitted from this discussion.

The best reason for this presentation is that there is a well established impression among experimental workers and clinicians that the liver can be protected against the action of liver toxins by proper diet. This diet must be high in carbohydrate to insure a good glycogen content of the liver. It must be low in fat to lessen the necessity for fat storage in the liver. Fat storage seems to be harmful even in the presence of a high glycogen content. The protein in the diet should be made up largely from vegetable sources and eggs and milk because of the impression that meat proteins place a heavy load on the deaminizing and uric acid destroying functions of the liver. Choline is thought to be highly protective against fatty metamorphosis.

The liver is a storage depot for vitamins A, C, D, and at least certain portions of the vitamin B complex. It uses vitamin K to produce prothrombin, essential to normal blood clotting. The badly cirrhotic liver responds to treatment with these vitamins rather poorly because of deficient circulation and loss of manufacturing and storing capacity. Since the avitaminosis of late cirrhosis is so refractive to treatment, early diagnosis and therapy become the more imperative.

To show what can be done with advanced cirrhotics, however, Patek and Post are treating a number in New York with a good diet and bed rest, supplemented by yeast and vitamin B₁. They have observed improvement in a substantial number, with disappearance of jaundice, edema, ascites, and vascular spiders in some of them. Seemingly a prognostic point, in their experience, is the initial level of the serum albumin. Those with the highest initial levels respond the best to treatment.

Butt and Snell of the Mayo Clinic recently reported that, after observing Patek's results, they have used this diet with some modification

for the past two years, with encouraging results. Their diet consists of from 350 to 500 gm. of carbohydrate, from 110 to 145 gm. of protein, and approximately 60 gm. of fat. They allow half the protein to be from meat to facilitate preparation of the diet. In addition, they give vitamins A and D in the form of concentrated fish liver oils in doses of from 25,000 to 50,000 international units once or twice daily. They give thiamine chloride, 10 mg. daily, in divided doses and from 8 to 12 ounces of citrous fruit juices daily. They also give from 30 to 50 gm. of brewer's yeast daily, mixing the powder with tomato juice or egg nog or giving the tablets. In addition, they inject crude liver extract two

or three times weekly or substitute the oral aqueous extract three times daily. Intravenous glucose is also used, especially in acutely ill patients with signs of hepatic insufficiency.

In conclusion, then, we are dealing with a degenerative disease of the liver which becomes latent in some cases but in most instances progresses silently to produce symptoms only when portal obstruction occurs. There is hope for these people in a protective diet, provided it can be administered early enough. The diagnosis of early cirrhosis depends upon keen clinical observation, thinking of the disease, and the application of several good tests for liver damage long before the advent of ascites and jaundice.

TETANY IN THE SEVERELY TRAUMATIZED NEWBORN

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BEFORE the days of blood chemistry the term "tetany" was ascribed to a certain clinical syndrome that was successfully treated with calcium. Because the conditions under which it cropped up were so varied, a group of descriptive words and phrases came to be attached, such as infantile tetany, maternal tetany, occupational tetany, puerile tetany, tetany in infectious diseases, etc. As a result of the advent of the chemical method, however, the modifying terms have changed so that we speak now of bicarbonate tetany, phosphate tetany, guanidine tetany, hyperventilation tetany, hypoparathyroid tetany and the like. This represents a distinct advance in that it adds definition to the diagnosis. At the same time it emphasizes the multiplicity of causes of tetany and should warn against any conception of etiology which does not take this into account. That warning has not always been heeded by those writing on tetany occurring during the newborn period.

Bakwin,¹ Farr,⁵ and others^{6,7} have attempted to place the diagnosis of newborn tetany on a chemical basis and to restrict it to infants having a blood calcium of 8 mg. or less. By so doing they would strike out from that class many of the most impressive cases that have been reported. Presumably this is done in the interests of science.

However, such a creed immediately raises the question of how much scientific value a type of thinking can possibly have when it eliminates opposing ideas, not by explaining them away, but by ignoring them.

Tetany was in the beginning, and still is, a clinical diagnosis, suggested by the group of symptoms observed and proven by the response of those symptoms to calcium therapy. Chemical analyses have done much to explain and clarify knowledge concerning that disease but, as yet, they have not gone far enough to settle all problems that clinical observation brings up. Not until that time comes can reasoning based upon chemical analyses hope to survive against opposing opinion based upon careful, accurate, and honest clinical observation. Theory based upon chemical analyses dare not fail to explain the clinical problems, for this is a situation in medicine where clinical facts, even more than usually, are the proving ground for chemical theories. Fact is a hurdle that theory, to survive, must jump. It is not an obstacle that can be circumvented.

Basing the diagnosis, not upon chemical analyses but upon clinical response to therapeutic effort, it seems obligatory to me that we broaden our perspective of etiology rather than restrict

it. This I have repeatedly tried to do in the past⁹ and this paper represents another attempt to continue this practice.

Ever since Bakwin¹ emphasized the probable importance of phosphorus in the etiology of this disease I have wondered if this might not be a connecting link which could explain a growing conviction that newborn tetany is really more common in severely traumatized infants. Such babies should have a larger amount of cellular destruction than those born normally, and if this should occur, phosphorus might be released and lend its aid toward the development of tetany. This might be expected especially in cases with extensive hemorrhage, whether it be within or without the cranial cavity. The following case, in which the hemorrhage occurred in subcutaneous tissues, illustrates and supports the theory.

Case Report

A baby boy, born by very difficult forceps delivery, was seen on the second day principally because he looked so badly. Incidentally, he had vomited some of his feedings. Examination revealed the fact that almost the entire scalp had been torn loose from the underlying tissues so that frank hemorrhage had occurred to the extent that the enlarged head felt much like a mildly inflated bladder. In spite of this tremendous evidence of local trauma nothing suggesting intracranial injury could be discovered. Furthermore, nothing suggesting newborn tetany was present.

Recalling past experience, I ordered parathyroid extract at once in anticipation of the development of tetany. In spite of the treatment the tetany syndrome began to appear within a period of twenty-four hours, and it was not under control for fourteen days. The only important measure employed was the injection of parathyroid extract, a total of 11.5 c.c. being given by the twelfth day of observation.

When, during the second day of observation, the tetany was seen to be increasing in spite of large doses of parathyroid extract, 25 c.c. of hemolyzed fluid from within the hematoma was withdrawn and analyzed for its phosphorus and calcium contents. The former proved to be 7.5 mg. and the latter 7.6 mg. per 100 c.c. of material. A second analysis, twenty-four hours later, at which time the rest of the available fluid was withdrawn, showed a phosphorus content of 6.7 mg. and a calcium level of 7.5 mg. per 100 c.c.

Following this second withdrawal, improvement seemed to increase definitely. This might be illustrated by the fact that up to this time, two and a half days after first observation, 5.5 c.c. of parathyroid extract had been administered without success in holding the tetany in check, while after this period a total of 6 c.c. was all that was required over a period of eleven and a half days to clear the tetany entirely. At that time, the blood calcium was 11.8 mg. and the blood phosphorus 7 mg.

Discussion

The reasoning behind the therapeutic effort in this case is directly attributable to suggestions made to me by Dr. Mildred Ziegler.¹¹ While explaining the manner in which hemolysis might increase the phosphorus content of blood serum she referred to articles by Martland and Robison,⁸ and by Binger³ as having important bearing on my problem at the time.

Martland and Robison showed that hemolysis caused an increase in the inorganic phosphorus content of the blood serum, and furthermore that even unhemolyzed blood, if kept fluid at body temperature for several hours, would increase its inorganic phosphorus by as much as 20 per cent. Binger demonstrated that phosphate possessed toxic qualities which were associated with a drop in the serum calcium level, and which might be accompanied by the development of tetany (except where acid phosphates were used).

These two papers afforded ample justification for the suspicion that hemolysis might be one of the factors behind the development of newborn tetany. This factor should have a certain limited influence even in the normal newborn in whom an appreciable amount of hemolysis must take place within the first few days of extrauterine life. But in the severely traumatized infant, in whom extensive hemorrhage had occurred, either in the form of frank hematomas inside or outside the cranial cavity, or just as extensive ecchymoses, a greatly augmented significance might reasonably be assigned to this process. From this background the determination to test the feasibility of this theory in the next favorable case developed. This infant seemed to present that opportunity.

Three methods of therapeutic approach presented themselves. The first was that of administering large amounts of calcium either by feeding or by injection. This should not only raise the calcium content of the body fluids but also neutralize phosphorus present. It is the method advocated by Bakwin. To prevent local precipitation of calcium phosphate² he suggests intravenous injections. However, I have shown that remote deposits of calcium in blood vessels and lungs is as possible as local precipitation.¹⁰ Intravenous injection would not eliminate that possibility, so the giving of calcium in any form was considered a dangerous procedure.

Parathyroid extract has the double value of in-

creasing the elimination of phosphorus and of raising the level of blood calcium and was therefore considered the ideal treatment for this case.⁴ The third procedure of value was peculiar to this case, namely, the removal of a reservoir of phosphorus by the aspiration of the hematoma fluid. The clinical course seems to indicate that this proved a valuable ally to the injections of parathyroid extract. Unfortunately, in a majority of severely traumatized newborns the removal of extravasated blood by this means would be impossible.

The importance of the observations made in this case, I believe to be very considerable. In the first place they give concrete support for my growing conviction, previously expressed, that tetany is more apt to develop in gravely injured newborns. They also may explain much of the confusion that exists in the minds of many over the differentiation of cerebral hemorrhage, for example, and the tetany syndrome. It has long been a contention of mine that many of the symptoms by which the former was diagnosed were at least frequently the symptoms of an accompanying tetany, and this case supports that belief. These things being true these observations permit an added hope in the outlook for infants severely injured during birth.

Summary

Tetany was in the beginning, and still is, a clinical diagnosis recognized by a characteristic group of symptoms and proven by the response of that group of symptoms to calcium therapy. It is erroneous to attempt to use a single chemical standard such as a blood calcium level of 8 mg. as the basis for diagnosis. These statements hold true for tetany during the newborn period as well as tetany in general.

I have gradually been forced to the conclusion that newborn tetany tends to occur more frequently in the severely traumatized infants. Many possible explanations are perhaps available for

this observation. This case supports a preconceived theory that one of the reasons for this fact is that hemolysis of extravasated blood releases enough inorganic phosphorus to upset the calcium-phosphorus ratio and reduce the available calcium sufficiently to bring this about.

In the treatment of these cases the administration of calcium by any means whatsoever is dangerous in that it may bring about a precipitation of calcium, probably always as the phosphate, within the body tissues, even far removed from the region at which it was introduced. The treatment of choice is the administration of parathyroid extract which acts not only to increase the concentration of calcium in the body fluids but also has the added advantage of increasing the elimination of phosphorus. In cases such as the one here reported, where the blood extravasation was sufficiently great in available areas to cause a hematoma, an effective aid to the administration of parathyroid extract exists through the aspiration of the hematoma fluid.

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NEW LENS SIMPLIFIES EXAMINATION OF THE EYES

A lens which changes its focus in the same way that the human eye does, namely, by changing the curvature of its surfaces, has been patented by Robert Graham of Ohio State University. The oculist, in testing the eyes, instead of trying one lens after another, may put this single lens before the eye. Turning a little knob changes the focus, and a needle on a dial indicates the power. Two crossed cylindrical lenses of very thin glass (0.0028 inch) with liquid between them are used. Squeezing these together along the edges changes the curvature.—*Science News Letter*, October 17, 1942.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

A. J. Hertzog, M.D., and S. V. Lofness, M.D.
Pathologists

Presentation of a Case

DR. ROBERT H. ALWAY: This case is that of a fifteen-month-old female child. The delivery was normal and she was apparently well until the age of four months when one of the Community Health Service attending physicians noted that she had a droop of the right eyelid and constriction of the right pupil. In November, 1941, at the age of five months, she was referred to this hospital. Physical examination at this time, including x-ray studies of her chest, was essentially negative except for the presence of Horner's syndrome. The right pupil was contracted, there was a unilateral enophthalmus on the right and the right eyelids were closer together. The cause for this syndrome was not determined and the patient was discharged with instructions to return at a later date. She was again seen in June, 1942. Physical examination including an x-ray study of her chest was again negative except for the presence of Horner's syndrome. In July, 1942, discrete lymph nodes were palpated in the anterior triangle of the right side of her neck. A biopsy of one of the lymph nodes was done, but it showed no tumor. During the next several weeks, a mass developed above the right clavicle just lateral to the sternocleidomastoid muscle. This gradually increased in size. A biopsy of the mass was done, but no definite pathologic diagnosis was made. It was the impression of the surgical consultant that the tumor was malignant. Deep x-ray therapy was advised, and was begun about the middle of August, 1942. During the course of her third treatment, she suddenly became cyanotic and developed intermittent noisy respirations. She was immediately returned to the floor and for three or four hours she had difficulty in breathing. Improvement made a tracheotomy unnecessary at that time. Further irradiation was not carried out because of the danger of tracheal obstruction from any sudden increase in size of the tumor. The child progressively became worse and on August 31 respiratory distress was so advanced that a tracheotomy was attempted. The trachea was found pushed to the left of the midline. While the trachea was being opened, the child expired.

DR. GRATZEK: We had several x-ray studies on this child. The radiograph of her chest in July, 1942, shows a discrete rounded density in the apical portion of the right thorax. In a preceding film, there is suggestion of the same thing, although it was called a negative film. It was only in July that the mass became definite on x-ray. The next picture after x-ray therapy was begun, shows an enlargement of the mass. It appears to be in the posterior mediastinum and has pushed the trachea to the left of the midline. I tried to fluoroscope the child but she struggled so much

that the examination was unsatisfactory. The final film shows marked enlargement of the mass with evidence of bilateral bronchopneumonia.

DR. PEPPARD: When the child was first seen, were there not any findings on physical examination that lead to the x-ray study of her chest?

DR. ALWAY: No. There were no physical findings other than the Horner's syndrome. Later the mass became demonstrable.

INTERM: What appeared to be the immediate cause of death?

DR. SHER: Death appeared to have resulted from mechanical pressure of the tumor on the trachea, and bronchopneumonia.

DR. GRATZEK: X-rays of her chest shortly before she expired show evidence both of bronchopneumonia and mechanical obstruction to the trachea.

DR. HERTZOG: This tumor fits in very well with what Pancoast described in 1932 as a superior pulmonary sulcus tumor. The tumor develops at the apex of the lung and invades adjacent structures. Destruction of the cervical sympathetic produces the Horner's syndrome. A majority of the superior pulmonary sulcus tumors are bronchiogenic carcinomas at the apex of the lung; but other tumors in this situation may produce the clinical syndrome, that is, sympathoblastomas and metastatic tumor.

DR. LOFNESS: We were not able to make a definite diagnosis from the biopsy, although it was studied by several pathologists. It showed dense fibrous tissue invaded by masses of very small intensely staining cells with little cytoplasm. Some of the cells were round, but many were spindle-shaped. There was no differentiation and no rosettes.

DR. HERTZOG: Does anyone want to venture an opinion as to the nature of the neoplasm before the autopsy findings are given?

DR. GRATZEK: I would say that a mass of this kind would be probably a neurofibroma or a teratoma, as they are not uncommon in the posterior portion of the upper thorax.

Autopsy Findings

DR. HEISE: At autopsy, the right pupil was larger than the left, measuring 5 mm. and 4 mm. respectively. In the chest, both lungs were found to be atelectatic in the lower portions. At the roof of the thoracic cage, after removal of the right lung, there was a rounded tumor mass 3 cm. in diameter attached to the right anterior surface of the sixth and seventh vertebrae. Its upper surface was irregular and extended up into the neck for a distance of 6 cm. It was very invasive, completely surrounded the right subclavian ar-

CASE REPORT

tery and vein. It had pushed the trachea approximately 3 cm. to the left and compressed its lumen. It was very difficult to remove the tumor because of its invasive character. After removal, the tumor measured $5 \times 6\frac{1}{2} \times 1\frac{1}{2}$ cm. On section, the tumor had a white fibrous appearance and was quite soft. On the anterior superior surface of the liver, there was a small white nodule measuring 0.5 cm. in diameter and another similar nodule on the surface of the left lobe measuring 3 cm. in diameter. A third nodule was found deep in the left lobe. It measured 0.5 cm. in diameter. No other areas of metastasis were demonstrated. A photograph of the child is shown that demonstrates the Horner's syndrome.

DR. LOFSNESS: Sections from the tumor show a malignant undifferentiated neoplasm. There is considerable necrosis present. It is composed largely of small, round dark cells with very little cytoplasm. There is a small amount of fibrous connective tissue stroma. The cells show no particular arrangement, although a few areas suggest rosettes. We know that we are dealing with a malignant tumor which has metastasized to the liver and produced death. The question of nomenclature arises.

DR. HERTZOG: The histologic structure suggests that the tumor arose from sympathetic nervous tissue and hence could be called a sympathoblastoma. A Bielschowsky silver stain failed to demonstrate any axones arising from the small dark cells. However, it is quite possible that the tumor is so undifferentiated that the cells have not developed axones. This tumor is closely related to the neuroblastomas arising in the adrenal medulla.

INTERN: If this tumor is related to those of the adrenal medulla, does it secrete epinephrine?

DR. HERTZOG: No, we are speaking of tumors arising from sympathetic nervous tissue. The type of neoplasm that may also occur in the adrenal medulla and secrete epinephrine is a tumor of the chromaffin cells of the adrenal medulla, and is called a paraganglioma or pheochromocytoma. It is a different type of tumor.

DR. MOOSNICK: Will tumors of sympathetic nervous tissue respond to x-ray?

DR. GRATZKE: I am not very well acquainted with these tumors, but we know that most tumors arising from nervous tissue do not respond very well. Medulloblastomas are an exception. X-ray therapy in this case apparently stimulated the tumor and some of the edema might have been caused by the therapy. In treating carcinoma of the larynx, radiologists usually ask that a tracheotomy be performed before they begin x-ray therapy, to guard against the effects of edema.

DR. LOFSNESS: To a certain extent, our diagnosis is by inference and exclusion. Tumors of the peripheral sympathetic system are more common in infants and young children. Also, the tumor was located along the right sympathetic trunk and was entirely extrapleural. Fisher classified these tumors of the sympathetic nervous system according to the degree of differentiation into (1) glangioneuroma, (2) neuroblastoma, and (3) sympathoblastoma.

Anatomical Diagnosis—(1) Sympathoblastoma of posterior-superior mediastinum and neck. (2) Metastases to liver and lymph nodes. (3) Mechanical obstruction and displacement of trachea. (4) Bilateral bronchopneumonia.

CASE REPORT

CHOLECYSTITIS DUE TO *SALMONELLA ORANIENBURG*

Report of a Case with Secondary Wound Infection

MILTON LEVINE, M.S., PH.D.
Minneapolis, Minnesota

THE case history to be presented is important since it illustrates an unusual cholecystitis and secondary wound infection with *Salmonella oranienburg*. This organism was first isolated in the United States in 1939,² and has been reported in only one other case of cholecystitis.¹

The patient was a white woman, aged fifty-one, who had a history of nausea and epigastric distress of about one year's duration. She was slightly icteric on admission. Her blood bilirubin was 6.4 urine urobilinogen 3, cholesterol 240. Her liver could be palpated 3 cm. below the right costal margin. A retrograde cholecystectomy was performed on May 26. Two grams of sulfathiazole powder was put in the wound. She received sodium sulfathiazole intravenously—1 gram on May 26 after the operation, 2 grams in 2 doses on the 27th, 4 grams in 4 doses on the 28th and the 29th. The Penrose drain was removed on June 2.

Pathologically, the gall bladder was thick-walled with a firm smooth mucous membrane. No common-duct stone was found, but the gall bladder was con-

tracted tightly around a large partially pigmented stone ($5 \times 3 \times 2$ cm.). Microscopic sections of the wall showed a large amount of fibrous tissue irregularly infiltrated with lymphocytes and plasma cells; the mucous membrane was largely destroyed.

Duodenal aspiration on May 27 yielded a pure culture of a *Salmonella* which was later identified by Dr. P. R. Edwards as *Salmonella oranienburg*. On June 7, a small stitch abscess developed in the healing incision and a pure culture of *Salmonella oranienburg* was isolated from this. The patient was discharged after the wound abscess disappeared.

Summary.—A case of chronic cholecystitis is reported with cholelithases in which *Salmonella oranienburg* is the probable etiologic agent. A secondary wound infection by this organism is described.

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1. Bornstein, S., Saphra, J., and Strauss, L.: Frequency of occurrence of *Salmonella* species. Jour. Inf. Dis., 69:59, 1941.
2. Schiff, F., and Strauss, L.: Occurrence of several unusual types of *Salmonella* in human infections. Jour. Inf. Dis., 65:160, 1939.

From the Department of Bacteriology and Immunology, University of Minnesota, Minneapolis.

HISTORY OF MEDICINE IN MINNESOTA

PIONEER PHYSICIANS OF MARTIN COUNTY PRIOR TO 1900

By ROSCOE C. HUNT, M.D.

Fairmont, Minnesota

(Continued from October issue)

Dr. Walter J. Richardson^{2,3,4,10,13} was born near Rochester, New York, in 1856, of New England parentage. His great grandfather served throughout the Revolutionary War as an officer. Walter J. Richardson was educated at Carleton College and at Amherst, graduating from the latter school in 1881. He attended the Harvard Medical School and studied anatomy under Oliver Wendell Holmes. From Harvard he transferred to the College of Physicians and Surgeons of New York, where he was graduated in 1885. The same year he started practice in Minneapolis but soon afterward established himself in Hutchinson, where he remained until 1892. He then moved to Fairmont, where he carried on an active practice until about 1934.

During the forty and more years that he practiced in Fairmont he was a leading physician and citizen, quiet, unassuming, and never seeking publicity. He practiced a conservative and highly intelligent type of medicine. Although at heart a very tender and sympathetic man he had a gruff exterior. He had no sympathy for the cults and openly said so. If a patient whom he had treated well left him for a quack, Dr. Richardson never forgot it and would never render him further service.

For many years he rode a bicycle and was a familiar figure slowly pedalling around on his calls, and even into the country, with his medicine case hanging over one handle bar and a spring clip on his right trouser leg. This clip he wore most of the time whether he was on the cycle or not. He was a physician who when he had a long obstetric case or was attending a patient who had a serious illness, "lived with the patient" until the crisis was passed. His family learned never to be worried about him if he did not show up for twenty-four hours or longer. It was this faithfulness to his clientele that so endeared him to all his patients and proved that his rather brusk exterior did not indicate his true characteristics.

Like many physicians, Dr. Richardson lost a good deal of money in speculative enterprises. Probably the most notable speculation was a Rainy Lake Gold Mine into which he had put a rather large amount. He made a trip to the site, saw gold ore actually brought out of the mine, and then went out as a salesman for the stock. Of course, the mine had been planted and there never was any gold there.

Although he was interested in the welfare of the community and his judgment and ability frequently were used in various ways, he never sought public office. In politics he was an uncompromising Republican. He served as a member of the county draft board in World War I and impartially made or supervised the examinations of some 4,000 men. He belonged to many lodges and was especially active in the Odd Fellows and the Masons. He was a generous contributor to the Congregational Church.

Dr. Richardson's last illness and death were caused by a fractured spine. He died in his home at Fairmont, February 20, 1936, at the age of seventy-nine years. His wife, Sarah, who was a New England and a Mount Holyoke girl, outlived him about a year. Three children had preceded him in death; two, Walter Bradford and Ruth, live in Fairmont and Syracuse, New York, respectively.

Dr. William Henry Gough^{13,16,18} was born July 24, 1859, at Sioux City, Iowa. In 1865, the family moved to St. Joseph, Missouri. After attending high school, William Henry entered Ellsworth Medical School St. Joseph, and was graduated in 1884.

Dr. Gough settled in a small town on the plains of Kansas. The population, mostly Bohemian, had the idea that unless a doctor could cure a patient in one visit he was no good. After battling poor pay, dust and drought for a year, Dr. Gough moved back to St. Joseph and was for six years house physician to a large children's home and hospital.

In 1892 he decided to enter private practice and settled in Worthington, where he remained five years. In 1897 he moved to Sherburn, Martin County. After eight years he again changed residence, going in 1905 to Granada, a village ten miles east of Fairmont. Here he has remained and at the time these notes are compiled (1942) still does some practice to accommodate old friends.

In 1890, Dr. Gough was married to Ida Gould More, a minister's daughter. There were two daughters of this marriage. Mrs. Gough died in 1923. In 1926, Dr. Gough was married to Mrs. Nellie Newell.

His early experiences in medical practice were similar to those of other pioneer physicians. He relates an experience while at St. Joseph, in 1884, when attending a Negro woman. It was 30° below zero, one entire window was devoid of glass and there was a little stove in the center of the room that was red hot. During his stay he had to keep turning around to avoid freezing. Finally the baby came and seemed to like the cold, since it as well as the mother made normal progress. At another time while in Sherburn Dr. Gough made a trip through drifts fifteen miles to Cedar Lake where he attended a confinement. The thermometer registered 45° below zero. The shanty was so cold that he left on his buffalo overcoat and his overshoes throughout the procedure.

Dr. Gough has always been a typical "doctor of the old school" and a man of high standing. In his community he has served in many ways other than professional. He always has stood for the best things and has been a faithful supporter of the Congregational Church. It seems probable that with fifty-eight years of practice, Dr. Gough is now the oldest practitioner in this section of the state.

Dr. Clarence C. Donaldson^{16,21,22} was born at Dundas, Minnesota, on December 5, 1858. His father was of Scottish descent and had come to Rice County from Pennsylvania in 1856.

Clarence Donaldson began his education in the country schools and afterward attended Carleton College. For several months he studied medicine in the office of Dr. William Greaves of Northfield. He later attended a course of lectures at Iowa City, and in 1887 was graduated from Western Reserve University at Cleveland. After a few months' practice in Goodhue County he settled in Clark County, South Dakota, where he spent three years. In the fall of 1890 he came to Fairmont, where he practiced for fifteen years.

Dr. Donaldson was married to Sarah Hine who came from Indiana County, Pennsylvania. There were three children, Samuel, Lavinia, and Robert.

Dr. Donaldson was a large, tall, fleshy man weighing about 300 pounds, very genial and popular. Because of the many friends he made and his ability and success as a physician he had a large practice. His politics were strongly Republican. He was an Odd Fellow and held many offices in the Lodge; he also was a Woodman, a Workman, and a member of other orders.

He was a great horse trader; in fact, horse trading was his hobby. This avocation well fitted into his free, happy character. The populace thought the doctor was slipping if he drove the same team more than a week. While it is almost a universal fact that doctors always lose on any speculative venture, it is said that Dr. Donaldson was never known to have got the worst of a horse trader.

In 1905, he left Fairmont and moved to Denver, Colorado, later going to Strasburg and Arriba, where he practiced until his sudden death which occurred May 24, 1929.

Dr. E. H. Foster^{13,20} was known to have practiced in Sherburn in the eighties and for some years. His license is registered in the records of the Clerk of Court and is dated November 28, 1883. The directory of the State Board of Medical Examiners lists him in the 1890 Directory as residing at Sherburn and in the 1895 directory as at Fairmont. However, inquiry fails to show that he ever practiced at Fairmont and evidence indicates that he was only a short time at Sherburn.

Dr. F. W. Weeks came from Jackson County. His license was dated February 10, 1887. He was a homeopath and a graduate of the Medical Department of the University of Iowa in 1884. The directory of the State Board of Medical Examiners lists him in 1890 at Sherburn and in 1895 at Welcome. However, the former entry is undoubtedly in error as he is known to have practiced at Welcome from 1887 until the middle nineties.

Dr. John Janss²⁰ was licensed October 8, 1895, and the same year established his residence in Welcome. He remained there until about 1910, when he went to California where he still lives. He has practiced medicine in California and has been in the real estate business.

There were several physicians who, although they might not be considered as pioneer physicians, came to the county at the close of the century and began distinguished and extended careers.

Gustav H. Luedtke was born on a farm in Watanwan County, November 18, 1870. His early life was spent there. He was graduated from the University of Minnesota after having taught a number of years. He settled in Fairmont in 1899 and at the time of this writing is in active practice.

Henry P. Johnson was born in Oshkosh, Wisconsin, February 3, 1855. He was graduated from Rush Medical College in 1879. After practicing a number of years in Houston County he settled in Fairmont in 1899. He practiced actively until 1935, when he retired and turned over his practice to his son, Dr. Donald W. Johnson. At this time (1942) Dr. H. P. Johnson is in very poor health.

Sources of Information

1. Budd's History of Martin County.
2. Files of the Martin County Sentinel.
3. Personal interview: Mrs. Ida Lenore Hunt, aged 83 (1942), wife of Dr. F. N. Hunt, daughter of Alpha D. Cadwell, early-day merchant of Martin County, and niece of Dr. Orville P. Chubb.

HISTORY OF MEDICINE IN MINNESOTA

4. Personal interview: Elmore Houghtaling, pioneer hardware merchant of Martin County.
5. Personal interview: Dr. Ammi L. Bixby.
6. "Driftwood," newspaper column, by Dr. A. L. Bixby.
7. Communication: Francis M. Hunt, Worcester, Massachusetts.
8. Personal interview: Mrs. Ellen McCartin Rooney, wife of John Rooney, Fox Lake Township, Martin County.
9. Communication: Mrs. D. W. Hunt, Glendale, California.
10. Interview: Walter B. Richardson, Fairmont, Minnesota.
11. Nickey Family History: Ella M. Milligan.
12. Personal interview: Mrs. Edward J. (Rose Rice) Edwards, Fairmont, Minnesota.
13. Records of Minnesota State Medical Examining Board.
14. Raymond A. McConnell, Managing Editor, Nebraska State Journal, Lincoln, Nebraska.
15. Mrs. Lottie (Canright) Swearingen, Fort Dodge, Iowa; birth, 1868, attended by Dr. O. P. Chubb.
16. Interview: Arza R. Fancher, many years Judge of Probate, Martin County.
17. Communication: V. M. Cummings, Recorder, Medical School, University of Michigan.
18. Personal interview: Dr. W. H. Gough, Granada, Minnesota.
19. Personal interview: Dr. Robert S. Farrish, Sherburn, Minnesota.
20. Personal interview: Edward R. Flygare, many years Clerk of Court, Martin County.
21. Memorial Record of the Counties of Faribault, Martin, Watanwan, and Jackson. Lewis Publishing Company, 1895.
22. Communication: C. Otto Donaldson, Deming, New Mexico.
23. Minnesota Historical Society Collections: Minnesota Biographies, 1912.
24. Communication: Charles Landeen, Sherburn, Minnesota.
25. Communication: Mrs. Myra Harnden Copelan, 124 East Century Boulevard, Los Angeles, California.

THE SEARCH FOR UNITY

If we are to have a durable peace after the war, if out of the wreckage of the present a new kind of coöperative life is to be built on a global scale, the part that science and advancing knowledge will play must not be overlooked. For although wars and economic rivalries may for longer or shorter periods isolate nations and split them up into separate units, the process is never complete because the intellectual life of the world, as far as science and learning are concerned, is definitely internationalized, and whether we wish it or not an indelible pattern of unity has been woven into the society of mankind.

There is not an area of activity in which this cannot be illustrated. An American soldier wounded on a battlefield in the Far East owes his life to the Japanese scientist, Kitasato, who isolated the bacillus of tetanus. A Russian soldier saved by a blood transfusion is indebted to Landsteiner, an Austrian. A German soldier is shielded from typhoid fever with the help of a Russian, Metchnikoff. A Dutch marine in the East Indies is protected from malaria because of the experiments of an Italian, Grassi; while a British aviator in North Africa escapes death from surgical infection because a Frenchman, Pasteur, and a German, Koch, elaborated a new technique.

In peace, as in war, we are all of us the beneficiaries of contributions to knowledge made by every nation in the world. Our children are guarded from diphtheria by what a Japanese and a German did; they are protected from smallpox by an Englishman's work; they are saved from rabies because of a Frenchman; they are cured of pellagra through the researches of an Austrian. From birth to death they are surrounded by an invisible host—the spirits of men who never thought in terms of flags or boundary lines and who never served a lesser loyalty than the welfare of mankind. The best that every individual or group has produced anywhere in the world has always been available to serve the race of men, regardless of nation or color.—RAYMOND B. FOSDICK: The Rockefeller Foundation—A Review for 1941.

President's Letter

I.

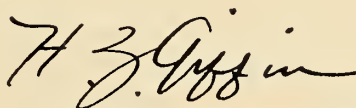
The drafting of men, eighteen and nineteen years old, makes it imperative to devise some plan for the selection and education of premedical students. Some have said that there will be too many physicians when the war is over and consequently that the training of physicians could be curtailed now, or confined to those who have physical disability which makes them unsuitable for the armed services. I doubt this statement very much. At present physicians who planned to retire are continuing in practice and many of those who had already retired have returned to practice; by the time the war is over, another group of doctors will be ready to retire; a certain number will be lost in service. All of these groups together will reduce the number of physicians available for active practice after the war. We, therefore, cannot consent to curtailment of medical education or to any reduction in the number of medical students. Correspondents returning from Europe speak of the great shortage of physicians and the difficulties of supplying adequate medical care there. Health and medical care are of primary importance to the country in peace as well as in war. Let us not fail to prepare for adequate medical care not only during war but after the war.

It is impractical to train physicians without premedical instruction. Men entering college might take up their premedical courses at once and be deferred as long as they maintain satisfactory grades. The number of premedical students would have to be limited to the number previously accepted in each college; otherwise too many students would apply for premedical courses. Or men might be drafted in the regular way and assigned to colleges for premedical courses on showing serious and competent intention of studying medicine. Two years of premedical college work should be sufficient during the war. The medical schools which demand three years of college work or a bachelor's degree could modify their requirements temporarily.

By the time this appears in print, legislation may have taken care of the situation satisfactorily. If not, let us use our influence to see that education of physicians does not suffer. If protective legislation has been passed, physicians who act as examiners and advisers to local selective service boards should assume the duty of seeing that regulations are carried out in a manner which will protect those who qualify for premedical courses and medical training, and, if necessary, to impress the boards with the importance of supplying an adequate number of students.

II.

Individually physicians are poor politicians. Only by organization, eternal vigilance and legal guidance can they protect the people from legislation detrimental to public health. Although they are poor politicians, physicians now have the opportunity to be minor statesmen. They are in a unique position for they can be important factors in the maintenance of morale during the war. By training they think first of the condition of the patient and his family and only secondarily of other considerations. This close association with the family group and its problems gives them an opportunity to counteract rumor, quiet discontent, uphold the principles of sound patriotism and sustain the flagging spirits of those who carry on in spite of deaths in service and illness at home. In the event of a long war maintenance of civilian morale will undoubtedly be an essential factor in victory. Physicians will prepare themselves for this role by evolving a sound philosophy and expressing their views with caution, consideration, and with regard to the effect on the individual, the family, the community and the country's war effort. Careless remarks and superficial criticism can do great harm.



President, Minnesota State Medical Association

EDITORIAL

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BUSINESS MANAGER
J. R. BRUCE

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MINNESOTA PROCUREMENT AND ASSIGNMENT COMMITTEE

THE *News Letter* recently issued by the State
Association has informed you that Minne-
sota's 1942 quota of physicians for the armed
services will be filled by next January. The pro-
fession of our state deserves congratulations on
the successful fulfillment of their obligations.
Not alone have they supplied needs of the armed
forces voluntarily by their own efforts, but they
are continuing to safeguard the health of home
communities without any serious break in these
sources. They have demonstrated that they not
only are able to do so, but that they are best fitted
to solve all problems of medical care.

Although the 1942 quota of physicians from
Minnesota for the armed forces is now virtually
filled, it should not be inferred that the respon-
sibility of the medical profession in providing
medical care for home communities and the
armed services is over even for this year. Many
problems requiring the active coöperation of the
medical profession remain to be solved. It may

be of interest to review the progress that has
been made by the Minnesota Procurement and
Assignment Committee and the indications for
the future.

In the first place, the medical profession in
Minnesota should be congratulated on the fine
spirit of coöperation it has shown and its willing-
ness to sacrifice personal interests for the good
of the country. Let it be an example for men in
other walks of life. The work of the Committee
got off to a slow start, owing to delays and to
confusion in the minds of the profession as to the
intent of information blanks which were sent to
them from Washington. The majority of those
who were declared available by the Committee
responded without delay, however, when their
call to service came.

It is of interest to note that our quota will be
completed without counting interns, residents
and fellows who were enrolled in various hospi-
tals and in the two institutions of learning in
Minneapolis and Rochester. A large group of
these physicians went into the services from
Minnesota, but since they have not been engaged
in actual practice in their communities, they are
not accredited to this state. It is also of interest
to note that the quota does not include those phy-
sicians who were in the Medical Reserve Corps.
With the inclusion of these groups the number of
physicians from Minnesota would amount to
more than 1,000 or, roughly speaking, a third of
the profession.

Although the Medical Officers Recruiting
Board in Saint Paul is now closed, it will never-
theless be necessary to furnish physicians for
proposed future increases in both of the services.
According to the latest statement issued, the
Army for 1943 will reach 7,500,000 men. While
medical care for the present force is well pro-
vided for, a definite increase in the number of
physicians, and readjustment of those already en-
rolled, will have to be made in order to take care
of the number proposed for 1943. With an esti-
mated air force in the Army of 2,500,000 men,
the number of physicians allocated to that branch
of the service, which will be well over 8,000, is
not too large. The peculiarities of that service
require a much higher ratio of physicians than

the average. The need of the armed services right now seems to be for younger physicians.

The Navy is well equipped for the present so far as medical care is concerned. In fact, it is said that a surplus pool of physicians now exists in the Navy which will be drawn upon to take care of 1943.

In making plans for next year, it will be necessary to continue where we left off and add sufficient physicians to meet the needs as they arise. The State Committee proposes to review the list of remaining physicians in the state carefully as to their availability for service. It may be impossible to take many more men from the rural areas of the state. However, some physicians can be spared from communities of moderate size and many more must come from the Twin Cities. It also will be necessary to draw upon that group over thirty-seven years of age. However, the Committee will continue to make every effort to avoid endangering community health and to scrutinize carefully the community needs.

Another problem confronting the Procurement and Assignment Committee is to find older men to take the place of younger physicians who have gone or could go into service. So far we have not met with much success. It would seem that such a sacrifice on the part of a physician might deserve as much credit as actually going into the armed services.

The Committee is at present making a survey of the needs of the industrial areas. A subcommittee having this problem in hand will soon be appointed and will do all it can to take care of this situation as necessity demands.

Your Committee believes that the physicians of Minnesota deserve great credit for the coöperation they have given us, and we are looking forward to continued coöperation in the future as the needs arise. After all, is there a physician in Minnesota who would not make any sacrifice necessary to help our country win the war?

W. F. BRAASCH, *Chairman*

LIFE INSURANCE FOR PHYSICIANS IN SERVICE

A PHYSICIAN who enters the service would naturally ascertain the status of his life insurance policies. He should first find out from a perusal of his policies in force whether they have a war risk exclusion clause. Policies written since the fall of 1941 contain such clauses.

Some physicians cannot maintain their life insurance programs while in the service without borrowing. Physicians should know that according to the Soldiers and Sailors Civil Relief Act of 1940 those in service can obtain a moratorium on premiums on life insurance policies not in excess of \$5,000 taken out before October 17, 1940, the date of the approved act.

In order to take advantage of this moratorium a Veterans Administration Insurance Form No. 380 should be filled out and sent to the insurance company and a copy to the Veterans Administration. The Veterans Administration will issue a certificate of the U. S. Treasury to the insurance company to cover all deferred premiums.

As in World War I a man in service may take out a government term policy which will terminate in five years unless converted before the end of that period. This policy makes no provision for total or permanent disability as in 1917, but does provide for waiving of payment of premiums during continued total disability.

It is perhaps unnecessary to advise physicians to apply for a government life insurance policy on entering service, to take effect immediately.

PHYSICIANS IN SERVICE

WE are particularly desirous of receiving news of the many members who are in service for publication in MINNESOTA MEDICINE. Of course, certain information as to the whereabouts and activities of some members cannot be made public. But those of us who for one reason or another must stay at home are interested in what members in service are doing.

Only those who are or have been in service realize the interest those away from home have in the activities of friends and acquaintances in other branches of the service as well as at home. In this connection we wish to remind those in service that a notice of changes of address sent to MINNESOTA MEDICINE, 2642 University Avenue, Saint Paul, will bring the journal to their new addresses. This applies even to those in foreign countries for there is no government restriction to the mailing of the journal outside the boundaries of the United States.

On the whole, we stay-at-homes rather envy those who have signed up. We realize that in most instances those in service have given up practices, built up over a number of years, or medical positions and are making a financial sac-

rice. Committees might well be appointed in each county society to work out details to protect the status of members entering the service. While many of the suggestions which have been made are not very practical, at least some publicity should be given to the idea that in fairness patients, hospital and medical school appointments and medical positions should be available after the war to returning physicians.

CAN CALCIUM THERAPY PROTECT TEETH?

THERE are still, it appears, physicians and dentists who prescribe calcium, at any and all periods of life, for the promotion of resistance to dental caries. Recent dental research, however, has shown that several cherished beliefs in regard to calcium therapy should probably be abandoned. Chief among the fallacies to be discarded are these: (1) Caries increases during pregnancy because the fetus withdraws calcium from the teeth of the mother; (2) a child can be endowed with caries-resistance through prenatal calcium therapy; (3) caries resistance can be promoted by a high calcium intake after teeth are fully formed.

Dr. Isaac Schour of the University of Illinois and his co-workers have shown fairly conclusively that dental troubles in the expectant mother are *not* due to withdrawal of calcium from her teeth by the fetus. An adult's teeth contains less than a thimbleful of calcium, or only about 1 per cent of the body's supply. The great calcium reservoir is the bones, from which the fetus draws what it needs. No calcium, moreover, can be withdrawn from or deposited in teeth that are fully calcified, because such teeth are avascular and acellular, providing no mechanism for the transfer of calcium. Sound medical reasons often exist for increasing the calcium intake of a pregnant woman, but among these reasons that of tooth protection is conspicuous by its absence.

There is considerable doubt that pregnant women have more dental decay than nonpregnant women of similar ages and habits. Caries often occurs during pregnancy, just at it may occur in anyone at any stage of life. Gingivitis of pregnancy is also a well-known condition. The physician should advise the pregnant woman to visit her dentist, in order that the dentist may remove areas of infection, fill the teeth, and give general care to the gums.

Increased calcium during the period of gestation is as ineffectual for the developing teeth of the fetus as it is for those of the mother. As the late Dr. Rudolf Kronfeld has shown, all calcification of the permanent teeth occurs postnatally, and even in the deciduous teeth, calcification of most of the outer portion (the part subject to decay) takes place after birth. Thus the prenatal diet of the mother, though vastly important for other reasons, has little influence on the future condition of her child's teeth.

During the period from birth through early adolescence, foods rich in available calcium are probably of great significance for dental health, because it is during those years that the teeth are calcifying. For growth and development and the maintenance of a satisfactory level of blood calcium, such foods are needed all through life, but their period of usefulness for the teeth is probably limited to the first fourteen years.

The individual physician must of course use his own judgment in the matter of prescribing extra calcium for patients of any age or condition. But in regard to the use of calcium to protect the teeth, he may well profit from these recent findings of dental research.

VERN D. IRWIN, D.D.S., M.P.H.
Director, Division of Dental Health
Minnesota Department of Health

Attention is called to the President's Letter which appeared in the October number of MINNESOTA MEDICINE. The subject was medical education in wartime.

The training of undergraduates in medicine is highly essential at the present time in order to assure a sufficient supply of physicians in the near future for the services and also for civilian practice. In order that properly trained physicians continue to be graduated the medical schools should not be stripped of their faculties. Those on the medical faculties under the age of forty-five who are declared essential by the Procurement and Assignment Committee need not feel uncomfortable because they are not in uniform.

The officers of the County Societies particularly should read the letter mentioned for it makes valuable suggestions regarding desirable programs for medical meetings. Though distance and time will necessitate the cancellation of national meetings and though those not in service are likely to be overworked, every effort should be made to provide interesting and instructive programs for meetings which can be held such as those of the county and regional societies and of the hospital staffs.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

Minnesota State Medical Association

George Earl, M.D., Chairman

CO-OPERATIVE MEDICINE SPEAKS ITS MIND

Leaders in the coöperative movement from all over the country met in convention in Minneapolis last month and devoted full attention at several sessions to coöperative plans for prepaid medical service.

Several personages of note among the small group of pioneers who have extended the coöperative idea to medical service were present. Among them were Dr. M. D. Ogden of Trinity Hospital, Little Rock, Arkansas, Dr. A. L. Curtin of the Milwaukee Medical Center, Milwaukee, Wisconsin, and Dr. J. P. Warbasse, president emeritus of the Coöperative League of the U. S. A. and director of the Group Health Association of New York.

It was obvious in the day's discussions that all is not clear sailing among the medical coöperatives; that the same problems which confront prepayment plans sponsored by medical societies are puzzling the lay coöperatives; that, as a group, these people in their optimism are likely to discount the difficulties detected by the clear cold eye of the actuarial expert; that the attitude of physicians everywhere baffles them.

Educating Doctors

How to educate the doctors and bring them into line occupied considerable discussion time. How to educate the public also appears to be a hurdle. Not only must the public be convinced of the desirability of so-called budget medicine but subscribers must be taught how not to abuse it. In fact, the problem which confronts them and all insurers for medical expense is tremendous. Most of them are convinced, however, that the coöperative is the simple and obvious solution of all problems.

Education of the public was considered in an optimistic spirit. Education of the doctor was somewhat less hopefully discussed.

"Medical Man Has Quirk"

Said Dr. Curtin, whose Milwaukee Center has been officially opposed for years by the Milwaukee Medical Society:

"The medical man has a peculiar quirk in his make-up. He has been taught to believe that budget medicine is socialized medicine—and that, of course, really means state medicine. Actually, budget medicine carries with it a change only in economic aspects and methods of payment for services. It leaves scientific requirements unchanged and allows to the profession all the rights and dignities connected with complete control of medical procedure.

"It is admittedly difficult," said Dr. Curtin, "to make your average doctor see that, because he has been taught to study nothing that does not emanate from Leland (God of Medical Economics) of the American Medical Association. If he can be persuaded to break loose he will find that the budget medicine or socialized medicine, in this sense, holds a great appeal, especially for the general practitioner. It is possible that some specialists are overpaid. But the general practitioner, at least, is greatly underpaid in comparison with officials of corporations. It should be our special problem to show the general practitioner that it is to his advantage to practice budget medicine and that fee-for-service medicine is becoming more and more difficult to finance.

Must Recognize People's Rights

"We doctors frequently make the statement that we, and we only, know what the people need and how we should be paid for our services," Dr. Curtin further declared. "Doctors do know what treatment the people need but they must recognize the right of the people themselves to plan how they are to pay for that treatment."

"Education of subscribers is also essential," he said. "People must be given explicit information about the service offered, who is to give it and what it is to cost. Prices for services must not be lumped with costs of materials. People must know their rights and privileges and their responsibilities and what recourse they have in case of infringement. Inevitably a few will abuse their privileges and others won't use them at all.

Deductible Amount Bad Practice

"It is wrong to tell people that you offer a complete service because there aren't enough doctors or hospitals

anywhere to offer a complete service. Tell them instead that you offer adequate and efficient medical care and such care must include preventive medicine from the cradle to the grave. In Milwaukee we strive to get everybody in for periodic checkups. We feel that the periodic examination counts in reducing home calls and lessening turn-over.

"We have found the deductible amount (initial cash payment before benefits are available) is bad practice. It raises a barrier and stops people from coming in early for treatment. Above all," Dr. Curtin asserted, "we must not offer cheap medicine because cheap medicine is expensive at any price. Budget medicine must be good medicine offered at a fair price with a method of payment which is not painful."

Doctor Hannah Disagrees

The question of periodic physical examinations brought some disagreement, however, principally from Dr. J. A. Hannah of Toronto, Director of the Toronto insurance plan, which is sponsored by the medical society there. This plan utilizes all physicians and existing facilities, in contrast to the Milwaukee plan directed by Dr. Curtin, which hires a staff to care for its subscribers.

Dr. Hannah approached consideration of periodic examinations from a notably realistic point of view.

"Experience has shown," he said, "that only about 15 per cent of those who present themselves without noticeable symptoms for examinations do actually have some disease that can be discovered in the course of the examination. If the public can pay 100 per cent for a 15 per cent return on physical examinations all right. But these examinations must be paid for in addition to the premium for other service or your financing will be insecure."

Immunization to Health Departments

The question, Can budget medicine take on other phases of preventive medicine, such as immunizations and nutrition work, provoked much discussion but the answer, generally, was "No." These phases of disease prevention belong properly to health and welfare departments in co-operation with physicians, it was pointed out. Budget medicine cannot undertake to provide food or cod liver oil. To detect malnutrition and direct its correction is part of the work of the doctor but to provide correctives will add to the cost or take away from service which is the essential job of medicine.

It was suggested that clinics provide services on a more economical basis and are therefore essential to budget medicine. Dr. Hannah, with five years of experience back of him to prove it,

declared, on the other hand, that efficient care can be given through existing facilities including private practitioners of the subscriber's choice.

Toronto Experiences

In Toronto they have paid their bills and built up a reserve. Dr. Hannah therefore believes their system is good. It does not yet provide the maximum service for the minimum fee, however, and for that he gives the following reasons:

"The public doesn't know how to use the plan properly for one thing," he said. "We paid out \$12,000 just to satisfy curiosity at first. The subscriber paid his dues and then dropped in on the same trip to see his doctor, on any trumped-up excuse, just to see if the plan worked. We were obliged to move away from the doctors' building to stop that. Furthermore, equipment is not adequately used. There is no economic soundness in having five x-ray machines in five doctors' offices, side by side. I would like to see existing facilities of medicine used far more efficiently than they are at present. I would also like to see doctors working together more closely than they are now so that they can let each other go at intervals for post-graduate training without endangering their practices. When they do and when they solve the equipment problem, the picture will be different. Clinics can do both, of course. But clinics are not proof against sending in extra, unwarranted bills. The fact is that neither the profession nor the public has seen the problem," Dr. Hannah concluded. "We're just cutting our teeth in this matter and sometimes we have to bite in painful spots. We're still learning and we must approach our problems in a patient manner. Certainly the profession is no more stupid about it than the public itself."

"I am impatient with the doctors as an organization," he said, "for their unwillingness to see the point of view of laymen and the propriety of a lay organization to handle medical bills.

"At the outset, we proposed to make an arrangement for medical service through a single clinic and kicked our heels for a whole year before the county medical society disapproved and the clinic found itself unable to go ahead.

"We Kicked Our Heels"

Mr. George W. Jacobson of Saint Paul, Executive Secretary of Group Health Mutual, first coöperative prepayment plan to establish itself in Minnesota, was obviously disgruntled as a result of his own efforts to arrange medical service for Group Health in Minnesota.

Prefers Clinics

"Subsequently we were obliged to use the indemnity method by which any clinic or physician could give the service. It's a kind of glorified accident coverage. (Note: Group Health Mutual is now selling two pol-

icies, one dealing only with medical service from clinics and the other giving the subscriber limited service with free choice of physician.) We prefer to deal with clinics because we find clinic men as a rule better educated to the public need and better trained to efficient use of equipment.

"It is difficult to see how people can get the care they need under the present fee schedules," Mr. Jacobson said. "The only way to meet the situation is through organizations in which laymen have something to say about the economic approach. Doctors, of course, fear that fees will be cut under such a plan. That may not be the case. To date, there are too many unknown factors to permit putting medical service on an out-and-out actuarial basis. It is likely, however, that if doctors themselves controlled all phases of the plan, more and more funds would be required for fees. Laymen should be in control of facilities."

Personnel Troubles

Dr. Ogden discussed immediate difficulties of maintaining personnel for coöperative groups served by a hired staff in wartime. Five out of his staff of twelve at Little Rock have already been called to military duty and it is impossible to get replacements up to standard. He believes that group health coöperatives are being penalized by means of the war shortage of physicians and even accuses local Procurement and Assignment committees of releasing too many of his men for military service. The civilian within the coöperative also needs care, he declared.

Cites Fortune Poll

Mr. A. G. Stasel, Business Manager of the Nicollet Clinic of Minneapolis, called attention to the *Fortune Magazine* survey, results of which were published in the July issue, which showed that some 73 per cent of the people questioned expressed a desire for some type of prepaid medical plan.

"It is freely prophesied," he said, "that prepaid medical service will receive a great impetus after the war. Group hospital and prepaid medical plans are regarded by actuarial experts as the most hazardous of any type of insurance for the reason that the decision, so far as benefits are concerned, lies in the hands of the insured. Some development of a mutuality of interest is essential to keep it on a sound basis of public interest."

Doctors Are Studying

The fact that medical organizations, including the Minnesota State Medical Association, are giving the entire question of insurance against costs of sickness their careful and disinterested attention has evidently escaped these impatient organizers.

They seem to be very little aware of the scope of the studies nor of the interest displayed by the very men they criticise in every development which holds promise of easing payment of the patient's bill.

After careful inquiry into experience in many quarters, the Committee on Sickness Insurance here has not as yet seen fit to sponsor any insurance plan of its own. Nor has it lent official sponsorship to any lay group undertaking of the sort. This course was adopted with the approval of the House of Delegates of the medical association and is the result of an honest endeavor to map a sound policy for Minnesota and to avoid pitfalls that are inevitably associated with pioneering in this complicated field.

It is very evident that the difficulties of the task to which they have set themselves rest lightly upon the advocates of coöperatives. The setbacks and obstacles already encountered, they have willingly laid to what seems to them to be the general refractoriness of the medical profession.

The actual dangers inherent in lay control of medicine have obviously, and perhaps naturally, escaped them altogether. If prepaid plans for handling costs of medical care actually prove to be the pattern of the future, it is certain that physicians will not block the way; but their knowledge of medicine and of the needs of sick human beings will be the essential ingredient of success and it must be applied, even to the discomfiture of some individual undertakings, to protect American standards for care of the sick.

NORTHWEST CONFERENCE REVIVED

When the Northwest Regional Conference was first organized under the presidency of Dr. W. F. Braasch of Rochester in 1927, officers concerned had in mind an informal neighborly conference about affairs of mutual interest to the small group of states in this area whose population and medical problems are similar.

The conference soon lost its character as a neighborly exchange of views, however. It drew representatives from more and more states, from Colorado and Montana to Michigan and Indiana, and eventually metamorphosed into the National Conference on Medical Service, which meets annually in Chicago at the time of the Conference on Medical Education and Licensure, which

serves a purpose far removed from that of the parent group.

The need has remained, however, for precisely the type of informal organization contemplated by the founders.

In point of fact, the need for such a conference is even more acute than ever in view of events in Washington. Legislation has been introduced which requires the best thought and the most effective action of physicians to direct or adjust it, as the case may be, in conformity with interests of good medicine.

The ease with which some unwise legislation has become law of late (notably the bill permitting chiropractors to treat injured federal employees under the United States Employment Compensation Board), points to the need for efficient action. Such action may well be given direction and effect through the concerted endeavor of small groups such as this conference would provide.

The situation was presented recently to the Council and that body accordingly authorized the invitation for a new Five State Regional Conference to be held at the Lowry Hotel in Saint Paul on November 8. Wisconsin, Iowa, North and South Dakota, with Minnesota, will be represented. The new conference will be held strictly to the idea of the first planners. It will be a regional conference in fact, and it is hoped that out of it may come an effective instrument for action and exchange of opinion among kindred states.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. Du Bois, M.D., Secretary

Ex-Chiropractor Pleads Guilty to Criminal Abortion in Saint Paul District Court

Re: State of Minnesota vs. Peter J. Stolurow, also known as Dr. Stoll.

On September 29, 1942, Peter J. Stolurow, forty-seven years of age, 2256 Sargent Avenue, Saint Paul, pleaded guilty in the District Court of Ramsey County to an information charging him with criminal abortion. Stolurow stated to the Court that his brothers and sisters and his family are all residing in California, and that he desired a chance to leave the State of Minnesota permanently. He frankly stated to the Court that it was impossible for him to keep out of the abortion racket in Saint Paul because of his general reputation for doing criminal abortions. He stated that he could be gainfully employed outside of the State at a law-abiding occupation. After a thorough consideration of the matter, the Honorable James C. Michael, Judge of the District Court, sentenced the defendant to a term of not less than two, and not more than eight years at hard labor in the State Prison at Stillwater. The sentence was suspended upon condition that the defendant

1. Immediately depart from the State of Minnesota;
2. That the defendant do not return to the State of Minnesota for any purpose whatsoever.

The defendant, who formerly was licensed to practice chiropractic and chiropody in the State of Minnesota, has a long criminal record. On April 11, 1928, he pleaded guilty to a charge of criminal abortion and was sentenced in the District Court of Ramsey County to a term of four years in the State Prison at Stillwater, serving over two years of this sentence. On April 15, 1935, the defendant pleaded guilty in the District Court of Ramsey County, to practicing medicine without a license and received a suspended sentence of one year in the Saint Paul Workhouse. On May 19, 1941, the defendant pleaded guilty to a charge of practicing healing without a basic science certificate, and paid a fine of \$250. The same day he also pleaded guilty to a charge of endangering the life of a minor and was sentenced to one year in the Saint Paul Workhouse. After serving five months he was released by the State Board of Pardons. Stolurow's basic science certificate, chiropractic license and chiropody license were revoked in 1935.

While the Minnesota State Board of Medical Examiners does not feel that there is anything about the defendant's record that entitles him to any leniency, nevertheless, the Board does concur in the opinion expressed by Mr. James F. Lynch, County Attorney of Ramsey County, that the community will be far better off during the absence of the defendant than it could possibly be by having him in the city. If the defendant violates the terms of his suspension of sentence, he will be immediately arrested and required to serve his sentence of not to exceed eight years in the State Prison.

BABIES, MOTHERS AND WAR

War is the great enemy of the home. For the home is inseparable from the family. The preservation of both is essential in the maintenance of morale. Now that we are organizing an army of millions, home and family are called upon to make sacrifices. Young married men must leave the fireside to fight for what they hold most precious, and, often enough, wives who are about to become mothers—wives whose plight is pathetic partly because they are too inexperienced and too poor to care for themselves, partly because from one-third to one-half of our doctors must join the colors, partly because the maternity wards of hospitals are already overcrowded.

A problem which was acute even in peace is accentuated by the exigencies of war. Fortunately the Children's Bureau of the Department of Labor under Miss Katharine Lenroot's able direction has done notable work in assisting State health agencies. The sum allotted for the fiscal year 1943 is only \$198,000—obviously far too small. The Maternity Center Association has stepped into the breach. For ten years it has done its best to make the entrance of infants into this world a safe and happy event. Its Lobenstine School, the first of its kind to train nurse-midwives, has sent its graduates to almost every State and even to far-off China. Though its budget cannot stand the strain, it has now taken over the Berwind Free Maternity Clinic, formerly operated as a teaching center for medical students by New York Hospital. So insistent are the demands of mothers-to-be in these critical times that financial considerations had to be abandoned in the hope that the public would make good a budgetary deficiency and thus endorse an expansion which is indispensable.

Hard as it is to pay taxes, buy defense bonds and support charities that have a legitimate claim on our purses and our hearts, there is no task more urgent than that which confronts the Maternity Center Association. Every dollar contributed to its fund is a dollar that will help to safeguard mothers and babies in the most trying days of their lives.—Editorial, *New York Times*, June 2, 1942.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

J. L. McLeod, Grand Rapids, Chairman

H. B. Allen, Austin
L. S. Arling, Minneapolis
G. L. Berdez, Duluth
F. J. Elias, Duluth

L. W. Foker, Minneapolis
T. A. Lowe, South Saint Paul
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A. E. Wilcox, Minneapolis
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WORKER FATIGUE

The fatigue problem in industry assumes a great importance as war production steps up to unprecedented levels in the United States today.

Results of extensive studies and comparisons, reported in *War Medicine* recently by Dr. R. R. Sayres of the United States Public Health Service, have shown clearly that fatigue is not solely the result of work done. It is also dependent on the worker's susceptibility to fatigue, a fact which varies from man to man and in each individual from day to day.

These findings are gathered from studies made over a long period in many large industries, and most impressive among conclusions drawn from them is the universal truth that the better the working conditions are, the greater the production will be and the smaller will be the costs due to accidents, absenteeism, turnover and compensation payments.

Plant Physician Responsible

Reduction of fatigue so far as the plant is concerned is a matter, in most instances, of introducing rest periods, of keeping working hours within reasonable limits with one day's rest in seven, and of good work conditions, including good lighting, heating and ventilation, and adequate plant medical service.

There are great advantages, measured in terms of production and of lowered costs, in supervising the living conditions of workers at home, as the experiment carried on over a period of years by the St. Joseph Lead Company has shown. The St. Joseph Company undertook to provide the kind of homes and advantages which would permit all of their workers to raise families satisfactorily and to send their children to good schools. The return in reduced turnover alone showed a clear profit. But that kind of worker-protection is largely out of the question during wartime. At the same time, plant precautions against overwork and ill health are more essential

than ever and should be part of the responsibility of every physician who in any way serves the industrial effort.

Rest Periods Increase Production

The importance of rest periods during necessarily long working hours has been thoroughly demonstrated. The fact is that rest periods will be taken, whether or not, during long spells of work and no discipline can eliminate the effects of fatigue. But rests sanctioned by the manager have been found to have far greater recuperative effect than those taken surreptitiously by the workers. Also, involuntary rests due to breakdowns or to inadequate supplies are apparently only one-fifth as valuable in relieving fatigue as voluntary rests.

Among experiments cited to substantiate these observations is one undertaken by an Eastern textile mill. Employees were given 40 minutes a day to be taken in four regular periods in which they were to lie down and rest. Spinning mules were shut down completely during the ten-minute periods but, in spite of that, production was up 10 per cent in a month.

Personal susceptibility to fatigue is determined by four factors as shown in these studies: the individual's constitution, his habits of muscular use, the environment under which he works and the nature of his task. A man's constitution may vary; it may be weakened by disease and strengthened by adoption of good habits of living. For a given task he may have formed habits that use more movements and keep his muscles under greater strain than are demanded by the nature of the work. Rhythm is a fundamental property of the nervous system and the building up of a series of rhythmic reflexes with no unnecessary movements is a potent factor in preventing fatigue. Unfavorable environmental factors include poor ventilation, excessive temperature and humidity. The nature of the task is an important

(Continued on Page 943)

I'M IN THE AIR CORPS NOW

CAPTAIN C. KENNETH COOK, M.C.

9th A.F.S.C., Patterson Field

Fairfield, Ohio

The article "I'm in the Navy Now," by Lieutenant Commander Edward Dyer Anderson, which appeared in the June, 1942, issue of MINNESOTA MEDICINE, has prompted me to submit a similar viewpoint from the Medical Department of the Air Corps in the hope that it might hold some interest for those who may contemplate service in this branch of the armed forces.

I am a novice at this game as are the majority of the men who are associated with me. We have, however, learned a great many things that concern the Medical Officer assigned to the Air Corps.

Having applied for service with the Medical Department of this Corps and presuming that things at home have been made partially ready for the day when orders are to be received, let me start from the day when orders arrive, assuming that you have passed your physical examination Form 63, and have made application for a commission in the Medical Department of the Air Corps.

A preliminary notice of commission will arrive with the probable date of orders and the name of the field to which you will be assigned. Within a few more days the orders will be received and about ten to fourteen days in advance of the effective date for your reporting to active duty.

Now come decisions that you will be forced to make for yourself hurriedly and, I hope, correctly. First, do not plan on bringing your wife or family. Leave the furniture, for you will find that suitable quarters are few and far between, and after they have been located you can transport the things that have been left behind. Bring your car for you may find that eventually you may have quarters fifteen to thirty miles from the field. You will be able to share rides at times and transportation facilities are already overtaxed. Your car may have to be disposed of at a later date rather hastily, but as a rule, this has not been a major problem.

Travel light for most of your civilian belongings have no place in this branch of the service. Underwear, pajamas, handkerchiefs, razor, shaving soap and brush, toothpaste and brush, comb and brush, soap, pen and pencil, and such are the only necessities that you will have that can be used.

When you arrive at the field you will be stopped by the civilian guard at the gate and upon showing your orders will be directed to Headquarters.

At Headquarters you will be given the following list of procedures to carry out and while these will vary with each field, they are in general as follows:

1. Sign the register at Headquarters.
2. Report to Chief Clerk and fill out officer's personal data sheet.
3. Report to Post Adjutant with copy of orders assigning you to the post.

4. Report to mailroom requesting assignment of mailbox.
5. Report to identification unit for identification badge.
6. Report to Finance Officer.
7. Report to Civilian Guard House for auto identification tag.
8. Report to organization to which you are assigned for duty.
9. Report to hospital for immunization register.
10. Read and initial Officers' Bulletin Board at Headquarters daily at specified time.

Now that you are officially in and assigned you will be given time to locate living quarters. This may prove to be a great problem. Eventually, with all the help you can get from your fellow officers, you will succeed in finding something, probably not what you had hoped for, but something that will do.

Your assignment to new duties which have been arranged for you will follow. These may bear some similarity to something that you have done previously, but the chances are that they will be entirely foreign to any personal experiences.

You will find your superior officers kind, courteous, willing and ready to give you advice from their own information or experience. The new associates you will have are men from all specialties, groups, and sections of the country and are more or less confused at all of the new activities and duties that have been assigned to them. You will have to be photographed and fingerprinted for a pass from the Adjutant General's Office, the local field pass, and for officer's files. There are blanks for "dog tags," officer's qualifications, various data sheets, travel and uniform allowances, transportation or storage of furniture, and vouchers to sign to put you on the payroll.

These are just some of the things that unravel as you go along and are mixed in with various shots of typhoid, tetanus, cholera, plague, yellow fever, blood typing and smallpox vaccination. In case you get to feeling too well, these tame you down again.

While personal qualifications and professional ones are taken into consideration, you may find that an obstetrician or pathologist is doing physical examinations; a surgeon may be in charge of a venereal treatment and prophylaxis station, and so on. After all, we are all primarily M.D.'s.

Men who are not placed directly on the hospital staff or examining unit may be sent to school locally or to some other field for a special course of instruction. Local training usually consists of a course of Medical Administration and the various and sundry records that are involved. Courses to familiarize you with map reading, field administration, first aid, gas masks and the various gases and their smell, behavior, duration, etc.; the service pistol, its use, construction and operation; field sanitation and the means of carrying it out in different forms and under various conditions; routine inspections of health and of sanitation and dozens more; also a moderate amount of drill.

A certain number of men upon completion of this

training are assigned to Air Depot Groups which are in reality complete portable hangar service for combat planes. They consist of Headquarters, Supply and Repair Sections and have complete Medical and Dental, Mess and other groups to make them self-supporting and self-contained units of from eight hundred to one thousand men. The purpose of these groups is to service, repair, salvage, and maintain all types of aircraft, and to keep both men and planes at a peak for continuous and efficient operation.

You will soon become impressed with the magnitude of the whole situation and the very small tooth that you are in one of the numerous gears that operate this immense machine. Financially it is not what you have probably had before, but when you consider that you and your many associates are doing the best that you can under situations that may be far from ideal, most of which have little or no bearing on any previous experience, there is really definite satisfaction in knowing that we are each trying to keep our men the best Flying Force in the world and to "Keep 'Em Flying."

Personal ties are few and when you get out of line you hear about it so that you do not violate regulations again. Ignorance is not an excuse. Your superior officers are men who have been through the same thing or are more experienced. Coöperation is splendid. Complaints are few. Work is hard, interesting, new, voluminous and regular. Results are what count *and we do the best we know how*, with what we have on hand; smile, laugh and do today's job as fast and well as we can.

Ours is a small part in the big job of winning a war and we *must*, and we *will* "Keep 'Em Fit to Keep 'Em Flying."

NOTE: Opinions and material in this are my own and are in no way to be taken as having any official expression of the Air Corps. Released for publication by the Bureau of Public Relations, War Department, Washington.

WOMEN IN THE WAR EFFORT

A protest against the employment of expectant mothers in war industry is voiced in the October issue of *American Journal of Obstetrics and Gynecology*. "Recent promulgations from official sources indicate a necessity for this enlistment of women in war industries," comments the *Journal* in its Article, *Women in the War Effort*. "The results of their labors seem to have proved of great value and their induction into factory and similar employment is believed to release many men for the combat forces. If this constitutes a part of the necessary effort to win the war, we should accept it. In doing so, however, we must divorce from the movement any possible underlying element of glamor and choose as participants those women whose entrance into labor would not disrupt their obligations towards society and the family . . ."

The plan of encouraging mothers to stick to their job by providing for their special care in the factories is condemned as follows: "Why should pregnant women be employed at all in hazardous occupations or any

others that make demands on physical resources which should be devoted to carrying out her foremost obligation to society? For years we have been developing methods to protect her during this all-important period, and now we are urging her to expose herself to a possible interruption of her child-bearing function.

"This war is defined as a total war. Consequently it includes everyone, perhaps indiscriminately, including men, women and children. In our efforts, however, to bring it to a successful conclusion, we must weigh carefully what each group can do to achieve that end and in the meanwhile to preserve, so far as woman is concerned, her particular function in our social economy. This applies above all to her place as an expectant mother. *Pregnancy may eventually prove more worthwhile than making bullets*. Whatever problems may be involved, they demand attention and the possible solution must be based on reasoned study and not hysteria. Physically-fit women, married or unmarried, and free from family ties, should, in our vast population, be found in sufficient number to rule out a resort to pregnant women in our expanded program of war industry."—*Briefs* (Maternity Center Assn., New York), October, 1942.

SELECTIVE SERVICE EXAMINATION REVEALS LESS ALCOHOLISM

It is encouraging news to everyone who enjoys spiking the "decadent democracy" arguments of the Axis, that only twenty-one men out of 19,923, or 1.1 per thousand were rejected for acute alcoholism under the selective service system, stated James H. Oughton, head of the alcoholic research bureau of The Keeley Institute, Dwight, Illinois.

It is good news, says Oughton, because Keeley statistics, based on a half million patients treated during the past sixty-five years, when this "decadent democracy" built up the West, laid the railroads, won the Spanish-American war, and helped win the last World War, show that the national average for alcoholism was even higher than it is today.

But lest Americans grow too cocky over the sobriety record of their fighting youth, Mr. Oughton offers the following sobering reminders:

Keeley Institute research reveals that to two people in every hundred, even one drink is as disastrous as a lighted match to tissue paper.

The selective service average for inebriety is lower than that of the national average because the typical alcoholic has been drinking steadily for ten years. Alcoholism, on an average, evidences itself among men in the thirties, forties and fifties. Physical examinations of men under selective service applied to younger groups.

Fourteen men per thousand were rejected under selective service for kidney trouble, and 100.4 per thousand for heart disorders. Indulgence in liquor is probably responsible for some of these cases, said Oughton as well as some cases of gall-bladder trouble, indigestion, nervousness, and insomnia.



In Memoriam



GEORGE F. BROOKS

Dr. George F. Brooks, well-known eye, ear, nose and throat specialist in Saint Paul and lately of Stillwater, died October 7, 1942, at his home at Marine after a lingering illness. He was sixty-four years old.

Dr. Brooks was born in Brownsville, Minnesota, March 23, 1877. After attending Shattuck Military Academy he received his medical degree from the University of Minnesota in 1900. Following graduation he practiced in Hibbing. After serving in the Medical Corps of the army during World War I he took post-graduate work in eye, ear, nose and throat in Chicago and was associated with Dr. Frank E. Burch in Saint Paul. In 1932 he moved his office to Stillwater where he was a member of the staff of the Lakeview Memorial Hospital. He lived at Marine-on-the-St. Croix. He is survived by his wife, Margaret.

During the past ten years Dr. Brooks was several times president of the Washington County Medical Society. He was known to his associates as a clean-cut gentleman whose honesty was never questioned. What more can be said of a man?

LAWRENCE F. EDER

Dr. Lawrence F. Eder, a native of Blue Earth, Minnesota, died October 11, 1942, at his home in Santa Barbara, California, at the age of forty-two. Dr. Eder graduated in 1924 from the University of Minnesota Medical School and had attained prominence as an obstetrician and surgeon. He had many friends and acquaintances in Minnesota.

EDWARD P. HAWKINS

Dr. Edward P. Hawkins of Montrose, Minnesota, was born in Hancock County near Carthage, Illinois, August 9, 1863, the son of William R. and Julia (Wright) Hawkins. At an early age he came with his parents to Carver County, Minnesota, and attended nearby public schools.

In 1887 he graduated from Battle Creek College at Battle Creek, Michigan, and on January 15, 1889, married Vesta D. Miller, a college classmate. After three years during which he and his wife taught school he studied medicine at the University of Michigan where he received his medical degree in July 1, 1897.

In October, 1897, Dr. Hawkins located at Montrose. As his practice grew he established a hospital there in 1903. This was incorporated into a training school for nurses in 1914.

Dr. Hawkins was an earnest Christian and being a strong believer in prayer he on occasion offered prayer for grace and guidance before performing an opera-

tion. This brought assurance to his patients in their hour of trial.

Since 1920 Dr. Hawkins has spent his winters in Miami, but always looked forward to returning each spring to his home and garden in Montrose.

A year ago Dr. Hawkins suffered a severe heart attack and in spite of spending the last winter in Florida did not fully recover. The end came on September 28, 1942. He is survived by his wife; a daughter, Mrs. E. F. Willett of Mt. Vernon, Ohio; two grandsons, Edward Ferrand, Jr., and Robert Lee Willett; one sister, Mrs. Martha E. Fuller of Long Island, Alabama; and a brother, Grant Hawkins of Lodi, California.

SHERMAN SEDGWICK HESSELGRAVE

Dr. Sherman S. Hesselgrave was born in Sibley County, Minnesota, January 18, 1872. His father, Robert V. Hesselgrave, and his mother, Amanda Livingston, came to Minnesota from New York and settled on a claim near Arlington, Minnesota, in 1854.

Dr. Hesselgrave attended the Jefferson School and the Central High School in Saint Paul and graduated from the Medical School of the University of Minnesota in 1894. He, along with Dr. Sherwood, took their internships at St. Joseph's Hospital, following Dr. Harry J. O'Brien who was the first intern in the hospital. In 1897 he married Marie Elizabeth Greget. Dr. and Mrs. Hesselgrave visited her native France and other European countries in 1908.

Dr. Hesselgrave was on the staff of the Luther Hospital which was later known as the Saint Paul Hospital, where he collaborated with the late Dr. Eduard Boeckmann in perfecting the transverse abdominal incision. The subject was written up as "Rational of Transverse Abdominal Incision" by Dr. Hesselgrave and published in the *Saint Paul Medical Journal* in December, 1910. Dr. Hesselgrave at one time was also on the staff of the Midway Hospital.

During World War I he served as Lieutenant in the Medical Corps of the United States Army. After the war he received a commission in the Reserve and was commissioned Lieutenant Colonel in the Reserve in 1932.

In 1936 Dr. Hesselgrave moved his office from the Lowry Building to his home. Since that time he had served as a medical officer in a CCC camp for six months and practiced at Remer for some time. He also spent a winter in Babson Park, Florida, where he looked after his citrus grove which had been his hobby for twenty years. In 1941 he resumed practice in Center City, where he lived at the time of his death.

Dr. Hesselgrave was a member of the Ramsey County Medical Society for forty-three years and of the Minnesota State Medical Association for forty-five years. He

IN MEMORIAM

was a Mason and also a member of the Central Presbyterian Church in Saint Paul. Hunting and fishing were his best loved pastimes. He is survived by his wife and one sister, Mrs. H. L. Bullis of Oceana, Virginia, and a nephew, Richard Hesselgrave of Saint Paul.

EDWARD LEROY KANNARY

Dr. Edward LeRoy Kannary of Saint Paul died September 23, 1942, at St. Luke's Hospital following a comparatively short illness.

Dr. Kannary was born in Greenvale, Minnesota, on March 11, 1872, the son of Michael Kannary and Lavina Bates Kannary.

He attended the country school adjoining the farm and received his high school education at Northfield. After spending three years at Carleton College, he entered the University of Minnesota, where he graduated in 1897. That same year he enrolled at McGill College of Medicine in Montreal, Canada, and received his degree in medicine in 1900, completing the four-year course in three years.

Following graduation, due to his high scholastic record, he received an appointment as physician and surgeon on an ocean liner where he served two years on trips through the Orient. He then took six months' postgraduate work in Vienna, specializing in diseases of the skin.

In 1904 Dr. Kannary located in Saint Paul where he was always regarded as one of the leading practitioners in his chosen specialty. Two years later he married Cathrine Butler, who survives him.

Besides membership in the Ramsey County Medical Society, the Minnesota State and American Medical Associations, he was a life member of the Saint Paul Athletic Club, and served efficiently as president of the Town and Country Club, being very active on the Board of Directors for eight years.

As hobbies he thoroughly enjoyed hunting and golf, not so much for the sport itself as the pleasure he derived from association with his friends.

Ever cheerful and cordial and gifted with a very unusual wit, his presence was always felt in any gathering at any time.

—C. G. PERRY, M.D.

CHARLES W. MECKSTROTH

Dr. C. W. Meckstroth of Brandon, Minnesota, died at his home October 4, 1942, after being confined to bed following a stroke suffered in January, 1941.

Dr. Meckstroth was born in Le Sueur, Minnesota, September 7, 1872. After graduating from high school in Le Sueur he attended Hamline University and later the University of Minnesota Medical School where he graduated in 1895.

He began practice at Evansville but moved to Brandon in 1901 where he practiced continually until his illness in January, 1941.

On September 20, 1899, Dr. Meckstroth married Lottie C. Johnson. He is survived by his widow and

a son Orrin of Hawley, Minnesota. A daughter, Eunice Mildred, died twelve years ago.

Dr. Meckstroth held several offices of trust in Brandon, having been postmaster for a number of years and also a member of the school board. He was a member for many years of the Park Region District and County Medical Society and the Minnesota State and American Medical Associations.

STEPHEN WALTER RANSON

In the passing of Dr. Stephen Walter Ranson on August 30, 1942, at Chicago, neurology in the United States suffered a major blow and the pioneer tradition in medicine in Minnesota sustained a loss which it could not well afford. Dr. Ranson, a pioneer in certain aspects of American neurology, was the son of the first physician to settle in Dodge Center, Dr. Stephen William Ranson (1843-1904), who came to that railway village in June of 1870, and lived there for the rest of his life. He was a fast friend of such eminent Minnesota pioneers in medicine as Dr. Justus Ohage (1849-1935), Dr. William H. Mayo (1819-1911), Dr. Perry H. Millard (1848-1897), Dr. James Henry Dunn (1853-1904), Dr. Frederick A. Dunsmoor (1853-1930), and scores of others famous in the annals of medicine in Minnesota. The son was born there on August 28, 1880, and grew to manhood there. He received the degree of Bachelor of Arts from the University of Minnesota in 1902, that of Master of Science from the University of Chicago in 1903, that of Doctor of Philosophy from Chicago in 1905, and that of Doctor of Medicine in 1907. From 1904 to 1906 he was a fellow in neurology at the University of Chicago; in 1907 and 1908 he served his internship in the Cook County Hospital; in 1909 and 1910 he was an instructor in anatomy, from 1910 to 1912 he was assistant professor of anatomy, and from 1912 to 1924 he was professor of anatomy and chief of the department, in the Northwestern University Medical School. From 1924 to 1927 Dr. Ranson was professor of neuro-anatomy and histology in the Washington University School of Medicine in Saint Louis; but in 1928 he returned to Northwestern as professor of neurology and director of the notable Neurologic Research Institute of that university, a post which he occupied at his death. An editor of the *Archives of Neurology and Psychiatry*, Dr. Ranson also had written much on neurology. He was particularly interested in research concerning the structure and functions of the peripheral nervous system and of the hypothalamus. In 1929 the Stephen Ranson Lectureship in Medicine was created to honor him at Northwestern University. In 1936 he was the Harvey lecturer before the Harvey Society of New York, sponsored by the New York Academy of Medicine. He spoke on December 17, 1936, on "Some Functions of the Hypothalamus." One of his best-known works was his *Anatomy of the Nervous System*, published in seven editions, which he was revising at his death. He had contributed more than 160 papers to medical literature. He was a member of many scientific societies, including Sigma Xi, Association of American Anatomists (of which he was president from 1938 to 1940), American Association for the Advancement of Science, American

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Physiological Society, and the Association for Research in Nervous and Mental Diseases. The 1940 volume of the last-named society, *The Hypothalamus and Central Levels of Autonomic Function*, was dedicated to Dr. Ranson.

On August 18, 1909, Dr. Ranson was married to Miss Tessie Grier Rowland, of Oak Park, Illinois. Several children were born to them.

Dr. Ranson died in Chicago, of coronary thrombosis, on August 30, 1942. Funeral services were held at the Fourth Presbyterian Church in Chicago on Tuesday, September 1, 1942, in the course of which Dr. James Roscoe Miller, dean of, and associate professor of medicine in, the Northwestern University Medical School, observed: "As one of a group of friends and

colleagues who have had the rare privilege of his friendship, company, and counsel; as an acquaintance of the family, I have had the opportunity to know and to admire; as one of thousands of students to be found in every quarter of the globe who have knelt at his throne; as a representative of a University made infinitely greater by his having been a member of its faculty, and, lastly, I speak for all mankind and for those who are to follow through the ages in expressing our gratefulness for what this Great Man has given us."

A sister, Dr. Mary Eliza Ranson (Mrs. A. Franklin Strickler), of Sleepy Eye, Minnesota, and Long Beach, California, survives him. A brother, Dr. George Ranson (1871-1899), died at Saint Peter in 1899, in the course of active practice.

SUICIDE AND WAR

Along with its unspeakable evils, war does beget some changes which have a beneficial aspect. Some of these are essentially material—technological advances hastened by the pressure of urgent necessity, surgical and medical progress at an accelerated pace in the face of terrible emergencies of the battlefield. Less obvious on the surface, though striking deep, are new reactions in mind of a certain type. It is a commonplace in mental hygiene that it is healthy for the individual to forget himself by immersion in issues transcending his own petty, personal complaints. So comes about the singular paradox that in times of war a symptom of worry, discouragement, and despair—suicide—is actually found to become more rare than in peacetimes. Not only various national figures, but the records of the Metropolitan Life Insurance Company as well, show the evidence.

The death rate from suicide among the Company's policyholders this year is practically the same as last year's figure, and is with one exception the lowest on record. For 1941, as a whole, the rate dropped sharply from the preceding year. This phenomenon of an exceptionally low suicide rate is attributable largely to the psychological effect of the war, although the increased standards of incomes have contributed a share. A similar low level of suicide mortality is observed in England, where the rate fell consecutively from year to year between 1939 and 1941, and where the 1941 suicide rate among males was approximately 15 per cent below that of 1939. Also, there was a sharp fall in the number of suicides in the last three months of 1939, which in England marked the opening period of the war. Recent German figures also show a fall of 30 per cent from 1939 to 1941 in the suicide rate.

This decline in suicide during wartime has been observed in practically every country at war, and it is a rather curious fact that, in some instances at least, neutral nations neighboring on the belligerent countries shared in this same phenomenon. As for our own experience in the last war, not only was there a decline of 20 per cent between 1917 and 1918, but the downward trend began in 1916 and continued through 1920. Between 1915 and 1920 the decline was more than 50 per cent. While there was some rebound from these low levels after the war, the suicide rate has never returned to its pre-World War level, not even during the economic depression in the 1930's.

The lowering of the suicide rate in war is so marked and so universal that the list of instances could be lengthened considerably. The interest, however, is not in such a list of figures, but in the evidence which they bear of one favorable psychological effect of war. A national clamor acts as a uniting force. The needs of the country become of paramount importance, and the petty interests and difficulties of the individual tend to be forgotten in the urgent desire to aid the Nation in a time of crisis. Many sensitive individuals whose lives seem to lack purpose become absorbed in rallying to the defense of their country. Men live for the present and worry less about the future, especially as, during war, new channels of activity are opened. The demands of the military forces for material cause a sudden spurt in production and money incomes. Thus economic and psychological forces work together in the same direction for the benefit of the Nation's state of mind.—*Statistical Bulletin, Metropolitan Life Insurance Company*, Vol. 23, No. 9, September, 1942.

MINNESOTA STATE MEDICAL ASSOCIATION

Eighty-ninth Annual Session

June 28, 29 and 30 and July 1

Duluth, Minnesota

HOUSE OF DELEGATES

Sunday, June 28, 1942

The first meeting was called to order at 2 p.m. by Speaker W. W. Will.

Following a report from Dr. E. C. Bayley of Lake City, chairman of the Committee on Credentials, that a quorum was present, it was moved, seconded and carried that the reading of the minutes of the last meeting be dispensed with and, at the request of the Speaker, Dr. Gunnar Gundersen, president of the Wisconsin State Medical Society, addressed the delegates.

DR. GUNDERSEN: It is very interesting to note that your problems are very much the same as ours are in the neighbor state. We have the same type of background, we are interested in the same things and have more things in common than the adjacent states of Michigan, Illinois and Iowa. There has always been a healthy spirit of cooperation and competition between us, especially since the time eight years ago, when your president, Dr. Coventry, was from Duluth and our president was from Superior. I bring the greetings of your sister society and best wishes for the success of your association and this meeting.

The Speaker then called on Dr. S. E. Gavin of Fond du Lac, chairman of the Council of the Wisconsin State Medical Society.

DR. GAVIN: For many years I have heard about the organization in Minnesota and I believe we have adopted many of your streamlined procedures in the conduct of our society. There is no question that we have many things in common. According to the last AMA directory you have about twenty-five more licensed physicians but about 200 more members so you undoubtedly have something on the ball that gets you this increased membership which we have not as yet attained. In matters of legislation, medical economics and social relations we both probably follow along much the same paths. It is perhaps more important right now for men to be on the alert than at any other time in our history. We have been involved in handling legislation that is more radical, I believe, than any presented in Minnesota but the contact between the states is so close that such legislation may easily spread from one to the other.

There is little time during the war period for us to lay out the future of medicine when the war is over. We are completely concerned now only with winning the war. At the same time we must be on our guard. There are men and bureaus in this country whose ideas are not in the best interests of the medical profession and it does not require a great deal of discernment, in spite of assurances of men high in the government, to realize that plans are already taking shape to bring medicine under government control. With the undercurrent of hysteria which involves everything in these times it would take the merest spark to start a conflagration that would plunge us into types of state medicine detrimental to the welfare of the public as well as the profession.

Speaker Will called for the report of the Chairman of the Council, Dr. W. L. Burnap of Fergus Falls.

Dr. Burnap announced that he would dispense with the reading of the annual report already in the hands of the delegates and reported as follows on the Council meeting held in the morning of the same day:

REPORT OF COUNCIL MEETING

The bank balances for last year and the statement of budget expenditures was approved, the only change being an addition of \$1,000 to the budget of the Public Health Education Committee to cover unexpected additional expense for the packet-of-the-month program which has doubled in demand from the membership this year. Also additional funds were allowed to cover expenses of delegates to the Atlantic City meeting of the AMA.

Certificates and lapel buttons for the Fifty Club (to be inaugurated at the banquet Tuesday night) were approved.

A gratifying increase in the amount of vaccine and toxoid distributed throughout the state was reported by Dr. A. J. Chesley, secretary and executive officer of the State Board of Health.

At the request of Dr. V. O. Wilson of the Division of Maternal and Child Health of the State Board of Health, the Council appointed a committee consisting of Dr. R. L. J. Kennedy of Rochester, chairman of the Committee on Child Health, Dr. R. J. Moe of Duluth, Chairman of the Committee on Maternal Health, and Dr. E. J. Simons, Chief of the Medical Unit of the Division of Social Welfare and Dr. W. A. Coventry of Duluth, chairman of the Committee on Low Income and Indigent Problems, to confer with Dr. Wilson and report at a subsequent meeting on the program proposed by the Children's Bureau for medical hospital obstetrical and pediatric care for wives and children of men in military service.

The annual complete report of the activities of the State Board of Medical Examiners was presented to the Council by Dr. A. W. Adson of the board. This report is on record in the State Office and may be examined by any interested member.

All physicians owning diathermy machines are required to register them with the government on a blank which can be secured from the Federal Commission at the old Post Office building in Saint Paul. This matter was brought to the attention of the Council and is now transmitted to the delegates at the request of the Council.

Other routine business included approval of mail votes by the Council, of cooperation in the continuation course on Child Health at the University Campus in which the Committee on Child Health acted as sponsor and many representatives of component societies attended; acceptance of affiliate memberships for Drs. H. J. Lloyd, Mankato; R. L. Windsor, Fergus Falls; G. F. Reineke, New Ulm; C. E. Johnson, Pine River; J. D. Watson, Minneapolis; invitations to two national associations, the American Association of Mental Deficiency and the American Society of X-Ray Technicians, to meet in Minnesota.

The most important discussions and action taken by the Council at this meeting involved the question of dues for men who have gone into active military service. Upon motion regularly seconded, a committee consisting of Drs. A. W. Adson, L. A. Buie, S. H. Baxter and F. J. Elias, was appointed to embody the conclusions reached as a result of these discussions in a resolution to be presented to the House of Delegates.

Permission of the Speaker to present this resolution for consideration of the House immediately was requested by Dr. Burnap.

The Speaker called for a resolution permitting the House to go into immediate session for new business. Upon passage of this resolution he called upon Dr. Adson to present the matter to the delegates. Dr. Adson reviewed earlier action by the delegates and the Council with respect to payment of dues for men in service. This action, in brief proposed to county and district societies that the societies pay dues of their own members if possible and if the members themselves could not pay their own dues. If the societies were unable to take such action, state dues of members below the grade of captain were to be remitted subject to approval in each case by the Council.

DR. ADSON: Many county societies assumed the burden of dues for their members in service but as more and more were called to active duty the burden became heavy for the larger societies with larger dues to assume. Furthermore, many men in the service felt that their dues should be remitted in that colleagues at home would inevitably profit by increased practice in their

absence. Also the majority of other state associations were following the policy of remitting dues for all who enter military duty regardless of rank.

It is obvious that waiving of dues for all men who go into service presents a serious problem to the state association. Normally there are 2,700 dues-paying members in the association of whom more than 500 are now in service, with the prospect that approximately a third will be in service soon if demands for December 31, 1942, are met. Thus the annual normal income of the society is approximately \$37,000 and that income by December 31 will be cut by \$12,000 or more if dues are waived. The problem, then, is how to meet the annual budget, which averages about \$36,000. Overhead expense will be no less and may be more in view of some heavy additional obligations involved in Procurement and Assignment work and in added war-time educational programs.

The question is, are we to continue as an active medical organization or are we to curtail our activities? To those of us who have sat in the House of Delegates of the AMA, it is increasingly clear that we are now out in front in Minnesota. We have accomplished something we do not want to lose. Furthermore, there is a constant threat to the practice of medicine. Evidence of projected new inroads from Washington is brought to us constantly. Organization to maintain the same active program and the same careful supervision is more necessary than ever before if we are to continue as a profession. We cannot reduce our budget and maintain the same sort of effective organization. It is true that there are a few paid employees such as our Executive Secretary but most of us give our time so that medicine may live when we are gone. We all hate assessments and we dislike paying dues; but we need money and what are we going to do? Throw it back on the county societies again? For rural societies the burden may not be great but for urban societies it is heavy. If we were chiropractors we would not hesitate to dig up fifty or one hundred dollars apiece to promote ourselves. But we do not ask so much. We need in fact no more than all of us spend many times for little extra luxuries.

You may ask why the additional funds could not be taken from our reserve. Well, our reserve fund now has a book value of \$44,000. If we assume the loss of \$12,000 this year and perhaps more next it will be but a short time until our entire reserve has vanished. And we are going to need that reserve if we are to meet the difficulties that are being shouldered onto the practice of medicine. The alternative which seemed best in the judgment of the Council this morning is embodied in the resolution which follows and I moved that it be adopted.

WHEREAS, due to the war emergency, the Minnesota State Medical Association faces the loss of approximately one-third of its membership and

WHEREAS, there has been no unanimity, based upon previous actions of the Council and House of Delegates, as to the manner by which this loss of income is to be met, Be It therefore

RESOLVED that, beginning with the year 1943, the dues of all members who enter the service of the armed forces shall be waived for the duration of the war emergency; that their status as members in good standing shall be retained for the same period, and

BE IT FURTHER RESOLVED, that a special assessment effective January 1, 1943, is hereby levied in the sum of \$5.00 per member per year during the war emergency.

Other members of the Council committee were asked to discuss the matter. Dr. Elias pointed out that dues of St. Louis County who have gone into military service have been paid by two assessments of members in spite of which there has been a deficit. He felt certain that St. Louis County members would not object to the state-wide assessment of \$5.00.

Dr. Baxter pointed out that the necessity for maintaining a strong state organization is increasing; that, even if it is necessary to curtail local activities, the state association must be maintained. Many local societies

that have remitted their own dues for their members in the services will be under a heavy burden. Nevertheless he believed that the resolution should be adopted to maintain the strength of the state organization whatever may happen.

Dr. Buie spoke on behalf of the special committee and also of the Finance Committee of which he is chairman.

DR. BUIE: If one-third of the paid membership should leave by January first, that would mean a loss of 846 members or \$12,690 in membership dues. If that amount is deducted from the current income of more than \$38,000, it will leave about \$25,000. But it costs the organization about \$36,000 a year to function and it is obvious that a budget of \$36,000 cannot be met out of \$25,000. There are lateral considerations which should be mentioned again. For instance there has been a little surplus above expenditures each year for the last few years. In 1940 the surplus was \$8,000; in 1941 it amounted to a little over \$2,000. Out of this accumulated income \$5,000 was invested in the reserve. There were many years during good times, however, when the association failed to accumulate any surplus whatever and the outlook for any such increase in the future is highly doubtful now.

With this addition from surplus revenue, we now have a reserve of about \$44,500 and, for that reason, many members have considered the financial position of the association to be impregnable. Some have even said that the reserve fund was too large, that it should be used immediately as soon as an emergency arose. But with an annual deficit of \$11,000 or \$12,000 or even of \$8,000 or \$9,000, provided some additional unforeseen income is found, the financial bulwark of \$44,500 will be dissipated within a few years unless this measure is adopted. The financial position of the association will then be in great jeopardy and the finance committee of the Council therefore sincerely hopes that the measure will be passed and that every delegate will undertake to explain the necessity for it to colleagues in his own society.

Dr. Burnap called attention to the fact that the additional income mentioned by Dr. Buie was derived from sale of exhibit space at the state meetings, that Mr. Rosell, executive secretary, had been very successful in making such profits from the last few meetings, but that large meetings with an extensive sale of exhibit space are probably a thing of the past. Thus it is impossible to count on this source of additional income.

Dr. Adson pointed out further that expenses are higher in alternate years due to the legislative program.

Dr. R. W. Morse of Minneapolis said that an additional assessment would have to be levied upon Hennepin county members to carry on their own county program and that the Hennepin county membership would undoubtedly ask to what extent economy in operation of association affairs could make up for losses and avoid the necessity of assessments.

DR. BUIE answered as follows: The Finance Committee of the Council has constantly and closely supervised the financial position of the association. It has been our continuous endeavor to practice economy in our program and in the office administration of our affairs. Our problem is that additional activities involving additional expense are constantly enforced upon us. It is our sincere belief that our overhead expenses are now reduced to a minimum and that there is no way to reduce them without curtailing or actually discontinuing essential parts of our program. As a member of the Finance Committee, I have been obliged to keep in very close touch with the situation and I speak with as much or more knowledge of it, perhaps, than other members of the Council.

DR. BURNAP commented as follows: We have had wonderful help all along the line of financing the state society. Mr. Rosell has unusual ability, Dr. Giffin has

checked carefully on things for years, we have committee chairmen like Dr. Buie and besides we have the help of reliable financial agents. All expenditures are carefully examined. Some which, like the packet-of-the-month, are increasing in cost, are regarded as one of the finest things undertaken by the State Association. Certainly we believe that the packet program should not be cut down. Furthermore, the prices of materials and many services has risen so that the strictest economy has been necessary to hold the costs within the budget adopted. In the opinion of the Council there isn't going to be any material reduction in the costs of carrying on the state society's work.

Mr. ROSELL: I think Dr. Morse should know that some projects of the association have been curtailed but that new ones have promptly been put in our laps to replace them. For example, the paper and administrative work of the State Committee on Procurement and Assignment has added greatly to our expense but the Council has expressed itself as unwilling to accept federal money to cover that expense. It is costing us considerable money but I believe all of the doctors of the state agree that they prefer to run this business of selecting physicians for the Armed Forces themselves without the aid of the Government.

Several delegates speaking from the floor expressed themselves emphatically to the effect that they did not wish the association to be paid by the federal government.

The resolution was passed unanimously by the delegates and it was also decided, upon motion of Dr. F. J. Savage of Saint Paul, that the resolution should be sent to the men in the armed services and published in MINNESOTA MEDICINE.

The Speaker then asked for action by the delegates on the report of the Chairman of the Council. It was moved, seconded and carried that the report be accepted.

The Speaker then called for the report of the Reference Committee on Medical Education Reports, Dr. F. W. Lynch, Saint Paul, Chairman. The following reports were considered:

COMMITTEE ON CANCER

The public education program of this committee continues to be carried on in cooperation with the Minnesota Society for the Control of Cancer.

During the past year the work of the society has branched out widely in all parts of the state. Lectures, exhibits, radio broadcasts and distribution of literature have characterized the campaign and its possibilities are limited only by funds and personnel available to carry on the work.

Great public interest is continually manifested in the possibilities of control of cancer and in the work of the organization and it is interesting to note that the simple questionnaire sent to members through the monthly News Letter of the association showed that a vast majority not only approve the cancer education program but profess to find more cancer patients coming to them early for diagnosis and treatment as a presumable result of the educational effort.

Cancer of the breast was chosen this year as subject-of-the-month for April to coincide with the annual membership drive of the Minnesota Society for the Control of Cancer. A packet of scientific material was prepared under auspices of this committee for distribution to physicians on request.

Headquarters of the society remain in the Lowry Medical Arts Building where offices were secured without rental through this committee. The chairman serves on the executive committee of the society and all educational undertakings are submitted to the committee for approval.

The Council has repeatedly approved the program and cooperation of all members in the work is urged.

M. W. ALBERT, M.D., *Chairman*

COMMITTEE ON FIRST AID AND RED CROSS

The Committee had its first meeting of the year on February 28 at the Lowry Hotel in St. Paul. The decisions of the Committee are as follows:

"The members of the First Aid and Red Cross Committee were unanimous in the belief that, because of the urgency of the present situation, they would follow the standard Red Cross First Aid Textbook in teaching First Aid.

"It was agreed also that, in order to avoid confusing the students, the book would be followed just as it is, without expression of the instructor's personal disagreement with the text.

"The instructor, it is believed, should avoid offense to any social or professional group.

"It was suggested that the physician be the executive officer, that he lay the plans and direct the course, that he personally give the primary instruction but that he utilize available persons in conducting the necessary drills.

"The medical profession is asked to make first aid training available to the hundreds who will be required to take it and to the thousands who will desire it. Air raid wardens, school bus drivers and victory aides are examples of persons who already are required to take it.

"The physician is best qualified of all persons in the community to direct the energies of the host of people who are insistent on giving their help. He need not fear that the entire burden will fall on his own shoulders.

"As a corollary of this, the physician may be sure that many organizations, the membership of some of which is composed of women, are eager to support his efforts. As an introduction to utilization of these groups, the physician should urge participation of the Woman's Auxiliary to the Minnesota State Medical Association.

"Obviously, in the development of the entire program, the prompt support of officers of county and regional medical societies is essential."

The Committee finds upon investigation that the members of the Minnesota State Medical Association are quite adequately supporting the efforts of the American Red Cross and the Office of Civilian Defense in the conduct of first aid classes. However, the Committee stands ready, at any time, and has offered their services to the various organizations that have need instructors in first aid.

On March 20 I went up to the Curtis Hotel in Minneapolis where I, as Chairman of the Committee, addressed the Board of the Woman's Auxiliary of the State Society and they in turn indicated their willingness to cooperate with the Committee.

As Chairman of the Committee, on April 14 I addressed the Blue Earth County Medical Society.

The Chairman of the Committee has broadcast ten times over station KROC in Rochester from the first aid classes which were conducted at North Hall in the Mayo Civic Auditorium. Considerable interest was aroused in the community. It is quite possible that such broadcasts could be carried out in other communities to advantage. However, they probably should be limited as there tends to be enough repetition so that they might become uninteresting if overdone.

The Committee, at the suggestion of Mr. R. R. Rosell, has applied for space at the Duluth meeting for an exhibit on First Aid and Red Cross and have received word that the Duluth Chapter of the American Red Cross will cooperate in this exhibit. It is intended that motion pictures will be shown bearing on the teaching of first aid and that as many members of the Committee as possible will attend the state meeting and take their turns at being present in the booth or room assigned to first aid. Dr. C. H. Mead, of Duluth, a member of the Committee, has been asked to make local arrangements in connection with the local Red Cross chapter.

An official meeting of the Committee will be held in Duluth on June 30 at which time plans for the Committee for the balance of the year will be formulated.

JOHN S. LUNDY, M.D., *Chairman*

COMMITTEE ON THE CONSERVATION OF HEARING

Interest in the all-out effort today transcends all other interests. Nevertheless your committee is able to report that in Minnesota there has been definite progress in the movement to conserve hearing as a part of the national health program. There is a better understanding of the problem. The larger possibilities of attainment in its solution are being more fully recognized by members of the medical profession, educators and social service workers. Increased hearing hazards incident to war and to the production of war materials in the heavy industries have stimulated unprecedented interest in prevention of avoidable hearing handicaps.

During the past year the number of audiometric tests among school children, college students and entrants in hospital training schools has materially increased.

A greater number of audiometers have been purchased, especially in larger communities, and more hearing-defective children have been discovered and given the benefit of corrective medical care and educational adjustment than in past years.

Lately there has been a noticeable improvement in the technique used in making hearing tests because of a wider use of the pure-tone or pitch range audiometers "accepted" by the Council of Physical Therapy of the American Medical Association for making screening tests for case-finding purposes. Individual tests by their employment yield more accurate results than tests made by instruments in which the fading voice reproduced by the phonograph, for simultaneously checking groups containing as many as forty persons.

Growing interest in the periodic testing of the hearing as a public health measure is shown by the fact that special courses on the conservation of hearing have lately been given jointly by the Department of Public Health and Preventive Medicine and the Division of Otolaryngology of the University of Minnesota.

It is hoped that similar courses will be offered by the teachers colleges as is done in several other states to meet a growing demand for trained audiometer technicians.

There is urgent need in Minnesota of an effective, competently supervised program for the conservation of hearing to be set up and administered by the State Board of Health and the State Department of Education working in closest cooperation.

The functions of each group should be clearly defined. Such a plan to be effective calls for wise legislation to provide the

necessary tax raised funds which it is hoped will be supplemented by generous grants by federal agencies as a profitable, long-term investment. Such a program will insure to the school child in impoverished rural areas as well as to the pupil in urban centers the benefits of modern preventive and corrective methods for safeguarding the hearing.

It is important that both the medical profession and our law makers recognize the fact that hearing-defective individuals should be placed on an equally favorable basis as those who are physically handicapped in other respects like those having visual, heart, locomotor and other bodily defects.

HORACE NEWHART, M.D., *Chairman*

COMMITTEE ON VACCINATION AND IMMUNIZATION

A special wartime effort to promote state-wide vaccination and immunization was undertaken under auspices of the committee, this year, in cooperation with the State Board of Health.

The program began in November, 1941, with radio and newspaper publicity in all parts of the state and an appeal by mail to all Parent Teacher associations, American Legion Auxiliary groups, public health nurses, school superintendents and others interested in public health.

Prompted in part by Minnesota's bad record for smallpox in 1940 and in part by the importance of protection against all epidemics as part of the national defense effort, the committee and the state health officials utilized every available means to reach the public with the imperative need for these accepted measures.

Two posters, one of them urging vaccination and the other immunization, were prepared especially for the campaign and were distributed widely over the state, together with small leaflets suitable for distribution at meetings and for mailing with statements. A total of 17,000 of these posters and 308,000 leaflets have been sent out by the state office in the course of the last six months.

As a result of all these efforts all counties in the state have reported some type of community immunization and vaccination program during the year and the amount of vaccine and toxoid distributed through the state department of health has exceeded all previous years. It is the hope of the committee that, with a steady continuing effort on the part of organized medicine, Minnesota may not only erase its former bad record, but virtually eradicate small pox and diphtheria from the state.

It is interesting to note that the annual May day child health program instituted by the Children's Bureau in Washington was devoted exclusively this year to vaccination and immunization and the proclamations on the subject from both the President and Governor Stassen no doubt gave an added impetus to the program of education already well established in this state. Copies of the proclamations were sent by the Board as part of the general educational program to all newspapers in the state.

The measure of progress in public health in any state is quite likely to be the extent and effectiveness of its program for control of smallpox and diphtheria. The energy and public spirit of the physicians are measured by the same yard stick. This committee, with the aid of the State Department of Health, is utilizing every means to reach both the public and the physicians to the end that the public health may be protected and that no reproach can be leveled upon medical leadership in Minnesota.

L. R. CRITCHFIELD, M.D., *Chairman*

COMMITTEE ON TUBERCULOSIS

Dates. The Committee on Tuberculosis held the following meetings during the year: August 21, September 25, and October 25, in the St. Paul Hotel. On November 27, the meeting was held in Litchfield, Minnesota, and on December 11 in Tyler, Minnesota. On January 29, 1942, the meeting was held in the St. Paul Hotel and on March 5 and April 23 the Committee met in the Lowry Hotel in St. Paul. Thus, there were eight regular meetings during the year.

Request of Council. At the August 21, 1941, meeting the Committee on Tuberculosis had a communication of June 17, 1941, from the Council of the Minnesota State Medical Association to the effect that the Committee make a careful study of the tuberculosis problem in Minnesota and formulate an adequate program for the control of this disease. The members of the Committee were cognizant of the great responsibility the Council had invested in them. They took the matter seriously and have since devoted a large amount of time to this work.

The tuberculosis problem has many phases which require study, such as incorrigible patients, control of the disease in personnel of school systems, detection of the disease among draftees, preparation of a pamphlet on procedures in diagnosis, treatment and prevention of tuberculosis for physicians, organization of a group of successfully treated patients, study of sanatorium facilities and standards, procedure for controlling tuberculosis in state institutions and an "all-out" campaign against tuberculosis.

Incorrigible Tuberculosis Carriers.—At the August meeting of the Committee the question of making provision for the incorrigible contagious case of tuberculosis was discussed. It was the consensus of opinion that tuberculosis cannot be controlled in the state of Minnesota as long as persons with contagious disease, who are not coöperative, are allowed to remain in their homes and mingle with others.

At the November meeting, Dr. Hilleboe pointed out that the State Sanatorium would be the logical place for incorrigibles and that Dr. H. A. Burns would be willing to undertake the care of this group of patients, provided special arrangements could be made for financing the necessary facilities and personnel. These persons must be kept under guard, preferably away from other patients; in fact, they must be treated almost the same as prisoners and, therefore, special provision should be made for them. Dr. Hilleboe was of the opinion that the State Department of Health is the logical unit to procure from the legislature funds for this purpose because under the present budget such arrangements cannot be made without depriving coöperative patients of the nursing and medical care they need.

Personnel of Schools.—The control of tuberculosis among the personnel of school systems has been highly developed in Minnesota by such persons as Drs. Lewis S. and Kathleen Jordan and Dr. S. A. Slater. The result is most gratifying, inasmuch as many school boards in this state now require adequate examinations of all persons seeking employment, including not only teachers but also bus drivers, janitors, engineers, et cetera.

This is a subject which the Tuberculosis Committee proposes to support in every possible way until all school systems of Minnesota are made safe for employees and students from the standpoint of contagious tuberculosis.

Examination of Draftees.—Because of the seriousness of the tuberculosis problem which developed among our service men during and after the first World War, which resulted in a cost of more than a billion dollars to the nation, the Committee manifested much concern over the present inadequate examinations of draftees. Tuberculin tests were not being administered routinely and x-ray films of the chest were not a part of the regular examination. It was the desire of Dr. Chesley that provision be made for adequate examinations for pulmonary tuberculosis of all draftees; therefore, the Committee passed a resolution to the effect that complete chest examinations, including the tuberculin test and x-ray films of the chest of every draftee who reacts, be given to all Minnesota draftees before they are inducted and also before they are discharged from military service.

Pamphlet on Tuberculosis for Minnesota Physicians.—At the October, 1941, meeting it was pointed out that the Committee had spent a great deal of time at its previous meetings on the discussion of standard and practical methods of diagnosis, treatment, and prevention of tuberculosis. It had selected the procedures most applicable to Minnesota upon which the Committee members had agreed. It was suggested that this material might be included in a pamphlet to be published in MINNESOTA MEDICINE and reprinted so that it would be available to all physicians of the state, as well as those of other states who requested it. The Committee voted unanimously in favor of this project. An outline was prepared and sent to each member of the Committee, and he was to complete it in the manner considered most suitable. These outlines were assembled and all suggestions and additions were incorporated. The manuscript was submitted again to the members of the Committee for any further suggestions, following which a final manuscript was prepared. It was then approved at a regular meeting of the Committee, after which it was sent to the Council. This body approved the manuscript and transmitted it to the Editing and Publishing Committee of MINNESOTA MEDICINE for publication. However, the latter committee rejected it with a statement that it was not suitable for publication in MINNESOTA MEDICINE. This communication was brought before the Tuberculosis Committee and referred to the Council. It was suggested by the Council that possibly the manuscript was too long and that most of the historical consideration should be deleted. This was done and the manuscript was again sent to the Council for any desired disposition. (This manuscript appeared in the October issue of MINNESOTA MEDICINE. Editor's Note.)

Former Patient Organization.—At the October, 1941, meeting it was suggested that an organization of tuberculous patients who have been successfully treated, and who wield considerable influence in their communities, might be of great value in promoting the tuberculosis control program throughout the state. It was pointed out that former patients are excellent educators and that they can often do more to promote a tuberculosis control program than professional workers. A number of prominent former patients have been interviewed and, without exception, they have expressed a strong desire to participate in every possible way in the tuberculosis control program. However, to date, no attempt has been made to effect the organization.

Study of Sanatoriums.—Minnesota has long been known to have one of the best sanatorium systems in the United States. Since the sanatorium is so important in the control of tuberculosis, it was thought wise to prepare a questionnaire to be sent to the Superintendents of these institutions. We desired to know when each sanatorium was opened, the capacity at that time, and the total cost of the plant. Since epidemiology of tuberculosis was instituted in connection with our tax-supported sanatoriums in 1931, we inquired as to whether if adequate epidemiological work were done in each of the sanatorium districts enough unsuspected cases of tuberculosis would be discovered to fill each institution to capacity. We also inquired as to whether epidemiological workers are provided for

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each institution and if not, what the Superintendent would consider adequate in this respect. We were also desirous of knowing whether each sanatorium is adequately staffed. The questionnaires have been returned and the data will be analyzed by the Committee.

It was proposed at the October meeting that the Tuberculosis Committee make an annual inspection of each sanatorium with reference to standards of diagnosis, treatment, epidemiology, et cetera, as practiced in these institutions. It was further proposed that the Committee should recommend to the Council that the State Medical Association issue an annual certificate of approval to each institution meeting the minimum standard requirements. The function of the Committee would be concerned exclusively with professional operation of the institution and would not involve business administration or official relations in any way. The question arose as to whether the sanatorium superintendents would welcome inspections of their institutions by the Committee. Therefore, a questionnaire was mailed to each superintendent and the replies were unanimous in granting this permission; in fact, most of the superintendents stated that they would welcome such inspection at any time.

Control of Tuberculosis in Institutions for the Mentally Ill.—Although in 1898 Dr. H. M. Bracken wrote a classical article on tuberculosis in the institutions for the insane, no serious attempt was made to solve the problem until 1934, when Dr. H. A. Burns made an arrangement to administer the tuberculin test not only to the inmates but also to the personnel of our state institutions. Tuberculin reactors had x-ray film inspections of their chests. The finding of relatively large numbers of persons with tuberculosis in these institutions was a revelation. In the meantime, Dr. H. E. Hilleboe became deeply interested in this subject and conducted some excellent tuberculosis work in our state institutions.

On October 28, 1941, our Committee received the following communication from the Council: "The Committee on State Health Relations at a recent meeting recommended to the Council that the Committee on Tuberculosis look into the matter of isolation of tuberculosis cases in state institutions. It was moved, seconded and carried that this matter be referred to the Committee on Tuberculosis."

Because of the fine work which Drs. Burns and Hilleboe had already done in this field, the Committee invited Dr. Hilleboe to address its November meeting. He stated that in the seven hospitals under consideration, there is a patient population of 11,000 with 3,000 employees. He pointed out that the danger of tuberculosis in these institutions is great to the public at large because there are at any given time some 1,500 patients away from the institutions on visits and the employees usually do not live in the institutions. Therefore, there is a great deal of mingling of patients and employees with other persons throughout the state.

Dr. Hilleboe called attention to the fact that because of the contact of employees with tuberculosis patients in the institutions, a great deal of tuberculosis develops among the employees. Moreover, many patients who enter free from clinical tuberculosis develop the disease while in the institutions, which may be due in part to contact with patients who already have the disease in a contagious stage. Because the incidence of infection among the inmates was found to be approximately 85 per cent, the tuberculin test seemed unnecessary, as it might be assumed that practically all persons needed other phases of the examination. Since the 14 by 17 inch celluloid x-ray films are so expensive, it was decided to use the 35 millimeter film in this survey. However, in the Anoka institution both 14 by 17 inch celluloid and 35 millimeter films were used to test the efficiency of the 35 millimeter film. Eleven and one-half per cent of the minimal lesions detected by the large film was missed by the microfilm but the findings were essentially the same for the two films with reference to more extensive lesions. In this survey the employees also had x-ray film inspection of the chest.

Among the 14,500 inmates and employees, 1,100 were found to have the reinfection type of tuberculosis. Dr. Hilleboe's recommendations are as follows:

- (1) The tuberculin test should be administered to all new inmates if the infection incidence among them is not too high.
- (2) All found to have reinfection type of tuberculosis should be segregated.

- (3) Careful follow-up examinations should be made on all with quiescent tuberculosis.

In order to carry out these recommendations, Dr. Hilleboe made the following suggestions:

1. That one center be established for isolation and treatment.

All active and inactive cases should be in one institution and the one at Anoka has been proposed for that purpose. There are 1,440 beds there in ten separate buildings, housing from 100 to 400 patients each. Anoka is near to the cities and consultants are therefore easily available. Non-tuberculous patients from Anoka would be sent to other institutions and the tuberculous population could be classified and housed according to the activity of their disease in the various buildings. If this plan were followed it might be possible to get one or two full-time physicians in tuberculosis to work in the institution in addition to the psychiatric staff.

2. That some kind of x-ray equipment be provided to go through all inmates of other institutions for one year to pick up all remaining persons who may break down in that period. If the rate of breakdowns decreases then, it may be possible

to skip a year in the procedure. Only thus can the reservoir of infection in the institutions for mental patients be wiped out. If more counties are to be accredited for tuberculosis control this reservoir must be removed and it is far easier to catch and treat these infected persons in the institutions than in the general population of the state.

The Governor appears sympathetic to the program and it seems likely that something may be done if we are ready to present the problem on July 1, Dr. Hilleboe believes.

It should be remembered that the employees in these institutions live in the communities, not in the hospitals. Also, about 25 per cent of inmates, according to Doctor Freeman, are discharged permanently over a period of ten years. The problem of visitors to patients is likewise serious and should be considered.

Dr. Hilleboe estimated that a minimum of about \$50,000 would be needed to continue the program of controlling tuberculosis in the institutions for the mentally ill in Minnesota. On request of the Committee, Dr. Hilleboe agreed to provide a complete report of the survey for the use of the Committee.

Resolution Regarding Dr. Chesley.—Because of the fine interest the Minnesota State Department of Health has taken in tuberculosis since its organization in 1872, and especially because of the work that has been done in more recent years, under the direction of Dr. A. J. Chesley, the Committee adopted a resolution at its September meeting to the effect that this committee extends warm appreciation to Dr. Chesley for his services to tuberculosis control in Minnesota and particularly for his aid and cooperation in the work of this committee.

Extensive scientific and epidemiological material was arranged for exhibit at the State Association meeting at Duluth. All phases of committee activity were represented.

Accreditation of Counties.—At the September, 1941, meeting of the Committee, it was suggested that standards be determined by which counties in the state of Minnesota might qualify for special recognition or accreditation. The members of the Committee were unanimous in their opinion that the time was ready for such a procedure. Dr. A. J. Chesley and Dr. Orianna McDaniel of the Minnesota Department of Health promptly provided the Committee with the average mortality rate from tuberculosis over the past five years for each of the eighty-seven counties. Committee members agreed that one standard for accreditation should be an average mortality rate over the past five years of ten or less per 100,000. By this standard four counties already qualified: Lincoln, 5.5; Olmsted, 8.7; Murray, 9.4; and Stevens, 9.2.

The Committee decided that there should also be a second standard, which would consist of testing at least 80 per cent of all the seniors in the high schools of a county and finding not more than 15 per cent reactors. The physicians of Lincoln County were informed that the lowest mortality rate in the state obtained there and that if the county could qualify for the second standard, it would be the first to be accredited. Within two weeks of this announcement, the practicing physicians of Lincoln County had tested the seniors in the high schools and reported an incidence of only 7.4 per cent reactors. Therefore, accreditation appeared to be a reality in that county.

It was agreed that the work of the Tuberculosis Committee would consist of encouraging and aiding the physicians in the various counties in achieving the standards of Accreditation; that the Committee would accept the figures reported by the physicians of the counties and would transmit them with the Committee's recommendations to the Council. If approved by the Council, this body would submit them to the State Department of Health and if approved, the county would be accredited.

This proposal was presented to the Council and on October 28, 1941, the Committee received the following communication: "The matter of issuing a certificate or some means of recognition to the four counties in Minnesota eligible for accreditation was discussed. It was moved, seconded and carried that the State Department of Health and the State Medical Association, subject to the approval of the Department of Health, issue a certificate of accreditation and the Committee on Tuberculosis and the Department of Health prepare the certificate." It was then presented to the State Department of Health at its October meeting, where it met with unanimous approval.

Members of the Committee, together with Drs. Ruth E. Boynton and A. G. Schulze, proceeded to draw up a certificate form, which was later approved by the Council and the State Department of Health. This certificate was to be signed by the Governor of the state, the Executive Secretary of the State Department of Health and the President of the State Medical Association.

Accreditation of Lincoln County.—Since Lincoln County had qualified for accreditation, arrangements were made for a celebration at Tyler, Minnesota, on December 11, 1941. This was an historical event in the tuberculosis control movement in the state of Minnesota and the entire nation. Large numbers of persons from various walks of life attended the ceremonies and the certificate signed by Governor Harold E. Stassen, Dr. A. J. Chesley, Executive Secretary of the Minnesota Department of Health, and Dr. B. J. Branton, President of the State Medical Association, was presented.

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Accreditation of Olmsted County.—In the meantime the physicians of Olmsted County proceeded to test the seniors in the high schools and the percentage found together with a mortality rate of 8.7 per cent for the past five years qualified this county for accreditation. On May 22, 1942, the accreditation ceremonies were held in the Central School Auditorium at Rochester, Minnesota. Dr. C. A. Stewart, Director of the Department of Pediatrics of Louisiana State University in New Orleans was the principal speaker. He presented in a splendid manner the history of tuberculosis control in Minnesota. Many prominent persons attended the ceremonies and the certificate was presented to Olmsted County by Dr. H. Z. Giffin, President of the Minnesota State Medical Association, whose signature it bore, as well as that of Governor Stassen and Dr. A. J. Chesley.

Plans for Accreditation of Murray and Stevens Counties.—Upon learning that Murray County might qualify for accreditation, the practicing physicians hastened to the high school where 96 per cent of the seniors were tested with tuberculin and only 5.5 per cent reacted. Those in charge of the work in this county have decided that they would like to have the accreditation ceremonies conducted at the time of their County Fair, when large numbers of citizens will be assembled.

Stevens County has also qualified from the standpoint of mortality rate and the senior high school students are being tested. On the basis of previous testing in this county there seems little doubt but that the incidence of reactors will be well within the qualification limits.

Thus, for the first time in America, the county has been employed as the unit in tuberculosis control, with the local practicing physicians and their allies conducting the work and with special recognition being given by official organizations.

The Meeker County Project.—The Meeker County project has continued and from time to time the physicians of this county have reported definite progress. The program outlined consisted of the administration of the tuberculin test to persons of all ages among the total population of approximately 20,000. All tuberculin reactors found on first or subsequent testing were to have x-ray film inspections of their chests (except children from birth to twelve years.) All persons found to have pulmonary lesions, as manifested by shadows on the x-ray films, were to be completely examined, to determine the etiology of their disease, and those who were proved to have clinical tuberculosis in the contagious stage were to be isolated at once, while those with such disease in the pre-contagious stage would be treated by either their local physicians or hospitalized, as recommended by their physicians. When this program was adopted, arrangements were made whereby the State Department of Health would provide tuberculin in the proper dilution without expense to the physicians of Meeker County; the tuberculin was to be delivered on the request of the individual physician.

The question of x-ray film was discussed at a number of meetings and producers of films were contacted with reference to any possible provision for supplying films at reduced cost for such a demonstration. None of the makers of celluloid films found his way clear to provide film at a cost less than the usual market price. The paper film, which has been found to be equal to the celluloid film in the detection of disease in the lungs, was then considered. This film has been used extensively by such persons as Dr. H. R. Edwards, Director of the Bureau of Tuberculosis, Department of Health of the City of New York, the Advisory Committee on Tuberculosis of the Medical Society of New Jersey, aided by Dr. Abraham E. Jaffin, and Dr. H. D. Lees of the University of Pennsylvania. It has also been used widely by several members of our own Committee, who have found it equal to the celluloid film.

One of the companies producing paper x-ray film, the Powers X-ray Products, Inc., was contacted and it was found that this film could be procured at an extremely low cost. The physicians of Meeker County were willing to give the paper film a trial, if the State Medical Association would procure it for them. At the April, 1942, meeting of the Tuberculosis Committee Dr. Karl Danielson of Litchfield stated that the paper film had been found entirely satisfactory by the doctors of Meeker County and there had been no difficulty whatsoever in developing a satisfactory technique of processing this film. Therefore, the expense of making x-ray film inspection of the chest has been extremely small.

Accomplishments.—On May 1, 1942, the Meeker County physicians reported that 5,412 persons had been tested with tuberculin; 21.8 per cent reacted. From this group 10 were found to have clinical pulmonary tuberculosis, for whom adequate treatment has been provided. There is no place in the United States, and probably none in the world, where a group of practicing physicians have manifested a finer spirit in controlling tuberculosis than that of the Meeker County group. They have conducted the examinations with no remuneration and have at all times been enthusiastic about the work.

Procurement of Funds.—The only serious difficulty has been the procurement of funds to provide for the necessary expenses. The State Medical Association has contributed approximately \$1,000.00 to this cause. The Northwestern National Life Insurance Company and the Minnesota Mutual Life Insurance Company manifested considerable interest in the project but found it impossible to offer more than moral support.

The Meeker County Commissioners have been contacted by the local physicians but they have not seen their way clear to offer any financial assistance. On April 20, 1942, the Ex-

ecutive Committee of the Minnesota Public Health Association took favorable action toward providing some financial assistance. This was accomplished through the efforts of Drs. Meyerding and Slater. On May 8, 1942, Dr. S. A. Slater presented the Meeker County program to the Board of Directors of the National Tuberculosis Association at its regular meeting in the Bellevue-Stratford Hotel in Philadelphia. He requested \$1,000.00 which was granted by this organization. While the sum available from the Christmas Seal organizations is extremely helpful, it is not adequate to carry the project to completion.

Although film has been provided for the physicians in Meeker County, we do not feel that they should be required to use their x-ray equipment and process the films at their own expense. To us it seems more than sufficient that they are giving at least \$100,000.00 worth of service to the citizens of their county. Therefore, more funds are necessary to provide only for expenses. As the project continues there will be definite need for one or two paid workers to go from house to house and even administer tuberculin tests in the homes, the fields, and elsewhere, and actually bring to the physicians' offices the reactors for x-ray film inspections of their chests. Although practically no opposition has been manifested to the tuberculin test or any other phase of the examination, there are always such factors as procrastination which make necessary actual contact by a paid worker. The members of our Committee are hopeful that some public-spirited Minnesota citizen, who has adequate funds, will come to the rescue. Such a person could easily be immortalized and his name would go down in history as one of the great benefactors of mankind for making possible an "all-out," county-wide tuberculosis program. We do not believe there is any doubt but that this is the only way to solve the tuberculosis problem and that the Meeker County demonstration will be adopted not only by the other counties of Minnesota but also the counties of the entire nation. No member of the Tuberculosis Committee or of the Meeker County group of physicians is to profit in any way or, indeed, receive any remuneration whatsoever from any funds contributed by organizations or individuals; all of us are giving our time willingly and enthusiastically, with the thought of defeating the greatest disease enemy of mankind since the beginning of history.

National Publicity.—Encouragement was provided for all persons participating in the Meeker County tuberculosis control project when on May 2, 1942, page 18, *Colliers'* magazine published an article by Robert Thompson entitled, "Worth More Than a Cow," in which the author describes the Meeker County program. This has brought the Meeker County project to the attention of the nation, as well as other countries. The physicians of the Minnesota State Medical Association cannot find words to express their great appreciation to Robert Thompson and to the editorial staff of *Colliers'* magazine, of which Mr. William L. Chenery is Editor, Charles Colebaugh is Managing Editor, and Thomas H. Beck is Editorial Director, for this wonderful service to humanity.

Interest of Governor Stassen.—The members of the Committee are delighted with the fine interest Governor Harold E. Stassen has manifested in tuberculosis. At one of the meetings, it was thought desirable to assemble our various proposals and ask the Governor to meet with us so that we might benefit from his suggestions and recommendations. On March 31, 1942 an invitation was extended to him and on April 2, 1942 he wrote: "I shall be glad to meet with the Committee as you suggested." The Committee, therefore, is preparing all of its present recommendations and desires to have this meeting with the Governor some time during the summer.

J. A. MYERS, M.D., *Chairman*

COMMITTEE ON PSYCHOPATHIC PERSONALITIES

The Committee on Psychopathic Personalities was not active during the past year but it was felt the Committee should be kept intact in order to deal with questions which might be raised by the State Bar Association's Committee on Psychopathic Personality.

Your chairman has been asked to write an article for the *Law Review* on the subjective and he intends to do so in cooperation with Mr. Kent Van den Berg of the Attorney General's Office.

GORDON R. KAMMAN, M.D., *Chairman*

COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Since the county medical society meetings are the most practical centers for the dissemination of medical knowledge, this committee is attempting to learn more about these groups throughout Minnesota. A circular on various aspects of these meetings has been returned and is now in the process of being reviewed.

ARTHUR H. WELLS, M.D., *Chairman*

HEART COMMITTEE

All members of the committee, except two (local) were circularized asking for ideas and comments on a program for the year. No replies were received. I am sure that owing to the war, all of the members are under more stress than usual, for which reason the committee's function, in spite of the staggering of membership, is still a negative quantity.

HENRY L. ULRICH, M.D., *Chairman*

COMMITTEE TO STUDY MOTOR VEHICLE
ACCIDENTS

After considerable study in the year 1940 and 1941, this Committee reported to the Council and House of Delegates last year that there was controversy in this subject, advised that we take a conservative attitude and sort of watch it from the sidelines. Time has indicated this to have been a wise procedure.

During the past year, there has been nothing, regarding this subject, brought to the attention of the Committee; there have been no meetings and we have no further report to make.

We feel that the purpose for which this Committee was formed has been fulfilled and we, therefore, respectfully suggest that it be disbanded.

J. C. HULTKRANS, M.D., *Chairman*

DR. LYNCH, Chairman of Reference Committee: Without comment we move acceptance of the Report of the Committee on Psychopathic Personalities.

Without comment we move acceptance of the Report of the Committee on Medical Education and Hospitals.

Without comment we move acceptance of the Report of the Heart Committee.

Without comment we move acceptance of the Report of the Committee to Study Motor Vehicle Accidents.

We move acceptance of the Report of the Committee on Cancer and wish to compliment them on their efforts and the cooperation obtained by them from the Minnesota Society for the Control of Cancer and the Women's Field Army for the Control of Cancer.

We move acceptance of the Report of the Committee on First Aid and Red Cross and congratulate them on the success of their efforts in aiding the program of first-aid teaching. Numerous members of the State Medical Association have been very generous with their time and very cooperative in following the standards of the Red Cross text book rather than confusing the public by teaching their own methods.

We move acceptance of the Report of the Committee on the Conservation of Hearing. We approve of their general program with emphasis on the necessity for further instruction of the medical profession. It is hoped that this committee can obtain even more effective cooperation with the State Department of Health and the State Department of Education.

We move acceptance of the Report of the Committee on Vaccination and Immunization. We congratulate them on the success of their efforts and hope that they will gain an even greater degree of success next year.

We move acceptance of the Report of the Committee on Tuberculosis and call the attention of the individual delegates to the complete report of the committee and urge that it be read by every delegate. We further call the attention of the Council to the request of the Committee on Tuberculosis for consideration of the issuance of annual certificates of approval to tuberculosis institutions meeting the minimum standard of requirements after inspection. We congratulate the committee on their institution of the program of accreditation of counties whose average mortality rate and estimated infection rate meet with certain standards set up by the committee. The members of the House of Delegates are probably completely familiar with the Meeker County Project which has attracted considerable local and national publicity for the problem of tuberculous infection. We hope that the outcome of this study will be very helpful in determining the nature of our efforts along this line in the future.

Five minutes being allotted to each committee chairman who desired to discuss the report of his committee, the Speaker called on the chairman of the committees as follows:

DR. HORACE NEWHART, Minneapolis, Chairman of Committee on Conservation of Hearing: Opportunities for real accomplishment in the neglected field of conservation of hearing have never been greater. The program in our own state is not what we would like to have it but the work of testing hearing of school children

is today underway in forty communities, 35,000 children having been tested in one city during the past year. Because progress has been rapid in the last few years an educational program is needed among our own members to familiarize them with new developments in prevention of unnecessary hearing handicaps. More attention should be given to the subject in county and state society meetings so that we may in turn help to educate the people in the possibility of protecting many future citizens from the misfortune of deafness. When this is done we may hope to introduce with success carefully planned legislation to permit establishment of a program such as has been established in other states, to take care of the school child and ultimately to reach out into other fields, especially in industry, so as to prevent hearing defects. The State Departments of Health and Education are the channels through which this must be accomplished. So far it has been impossible to put such a program into motion because of lack of funds. If medical men back such a movement, however, appropriations and proper legislation can be obtained. If not it is quite possible that the responsibility will be assumed by non-medical groups. We need to be more energetic in this field of preventive medicine.

DR. A. H. WELLS, Duluth, chairman of Committee on Hospitals and Medical Legislation: My object in speaking to you now is to ask you for suggestions for our work. To that end, we have sent out a list of questions to secretaries and we are compiling lists of activities of medical societies. What it is going to yield I do not know. We must not let down on our program of post-graduate education, but we should have definite information about what you want in mapping our program.

DR. J. A. MYERS, Minneapolis, chairman of Committee on Tuberculosis: The medical profession of Minnesota holds in its palm the solution of the tuberculosis problem. The accomplishments of the profession in Minnesota have always been outstanding. In 1911, 2,500 people died of tuberculosis in Minnesota, a mortality rate of 110. In 1941, approximately 700 died from tuberculosis with a rate of 27 per 100,000 population. Furthermore, we now have the facilities and the knowledge necessary to control this disease. We have the technique, the sanatorium beds, an unusually well-informed public and an active State Board of Health. All that remains is to go forward and put them to use. We have made a start, as you know, in Meeker county and in the accreditation program. I would like to say a word about the doctors of Meeker county in this connection. I do not think anyone in our tuberculosis work has ever shown a finer spirit than has been manifested by this group. Their enthusiasm has not waned. They will complete the program in Meeker county and the Committee is only hoping that other counties will take up similar demonstrations when this one is completed. The accreditation program is also progressing. Two counties, Lincoln and Olmsted, have already been accredited. Murray county is ready and, there, due to Dr. Slater's fine work, out of 97 per cent of the seniors who submitted to the test only 5.1 per cent reacted. We are looking forward to a time when every county in the state will be accredited. The committee is doing its best to bring the very latest knowledge about tuberculosis to all our groups of medical men and at the same time it asks for suggestions from all doctors who are willing to aid in this program. The time is not far away, we feel, when tuberculosis will be reduced to the same low level as typhoid and diphtheria in this state.

DR. A. E. Cardle, Minneapolis, asked Dr. Newhart from the floor what has been done in the way of ameliorating ear defects following tests of hearing.

DR. NEWHART: That is a very proper question. A great deal has been done in the way of medical follow-

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up to remove causes and treat the individual patient thus discovered. The importance of testing among school children lies in the fact that this early discovery makes effective treatment possible. There is another type of follow-up, too, which lies in educational adjustments, training in lip-reading, et cetera. It is also going forward as extensively as facilities permit.

At the request of the Speaker it was then moved, seconded and carried that the report of the Reference Committee on Medical Education reports be accepted.

The Speaker then called for the report of the Reference Committee on Miscellaneous Scientific reports of which Dr. A. N. Collins of Duluth was chairman.

The following reports were considered:

COMMITTEE ON CHILD HEALTH

On February 28, 1942, a meeting of the Committee on Child Health was held. The greater part of the time was occupied by discussion of the Summer Round-Up Program of the Parent-Teachers' Association and the matter of examinations of school children. A recommendation was prepared and transmitted to the Council of the State Medical Association relative to arrangements for an institute to be held at the Center for Continuation Study to which members of the State Association will be invited. Further discussion dealt with the program of the Bureau for Crippled Children which has to do with the study and care of children with heart disease. The Council was asked to accept the resolution pledging the cooperation of the profession of the State in the program.

R. L. J. KENNEDY, M.D., *Chairman*

COMMITTEE ON MEDICAL TESTIMONY

The Medical Testimony Committee has reviewed two cases during the past year. One case was referred to the Committee by a physician; the other case by a Judge of the Supreme Court. After reviewing the entire proceedings, a member of the Committee was appointed to discuss the testimony of the physicians in question with them. This was done and will undoubtedly have a beneficial effect.

On several occasions members of the Committee have received verbal reports from physicians about certain questionable testimony given in court by medical men of our Society. However, the complaining physicians would not submit a proper complaint in writing. For that reason, your Committee was unable to proceed with the investigation of these cases, two of which your Chairman believes should have been investigated.

The committee has adopted the policy that, in the future, the name of the physician requesting an investigation about questionable testimony given in any court by any physician in the state of Minnesota be kept confidential and known only to the members of the committee. This will avoid any possible embarrassment to the physician requesting the investigation. Furthermore, it should overcome entirely the unwillingness of members of the Minnesota State Medical Association to report in writing these physicians whose testimony requires careful study by the Medical Testimony Committee. Your committee will do their utmost to keep the standards of medical expert testimony at its highest level in the courts of this state provided we have the full cooperation of every member of our association. The committee feels that the members of the State Medical Association have not given their full support in either hesitating or being negligent in advising this committee in writing.

Requests have been received from six state and county Medical Societies to advise them about the details of our Committee.

Two articles have been published in the Journal of American Insurance, and in the Bulletin of the Association of Railway Claim Agents (National Journals) describing the activities of the Medical Testimony Committee of our Society.

E. M. HAMMES, M.D., *Chairman*

COMMITTEE ON OPHTHALMOLOGY

On September 26, the Committee on Ophthalmology met with Mr. N. H. Debel and Mr. P. J. O'Connor of the Industrial Commission, to discuss the standardization of disabilities due to ocular injuries. The report of the Committee on Visual Economics of the American Medical Association was called to the attention of the members of the Industrial Commission. This report takes into consideration corrected visual acuity, field defects, ocular motility, visual deficiency of one eye and of the coordinate visual efficiency of both eyes, before evaluating disability. Furthermore it suggests that compensation shall not be computed until all reasonable operations and treatment have been attempted to correct the defect, and that at least three, and in some cases up to sixteen, months have elapsed after all visible evidences of inflammation have subsided, before evaluating the disability.

Messrs. Debel and O'Connor were very pleased to enter into the discussion of the problem and anxious to cooperate in any plan which would facilitate obtaining a fair settlement of compensation resulting from ocular injuries. Mr. Debel requested that copies of the report be sent to him for distribution among the Commissioners, Referees and Attorneys, to assist them in their work of evaluating ocular disabilities.

At the request of the Committee on Ophthalmology, the Report of the Visual Economics Committee was reprinted in MINNESOTA MEDICINE.

The Committee on Ophthalmology approved the plan of the Minnesota Society for the Prevention of Blindness, to conduct a diagnostic survey of the eye conditions of school children in one county in the State. This survey was to be conducted by members of the University Hospital Staff, not in private practice, and was to be diagnostic in nature only. The Committee recommended to the State Medical Association that they make a donation to help carry out this survey. The Council responded with a liberal donation.

T. R. FRITSCH, M.D., *Chairman*

COMMITTEE ON FRACTURES

The Committee on Fractures of the Minnesota State Medical Association for 1942 has continued to give attention to improvement of the emergency care and transportation of simple and compound fractures of the long bones of the extremities, as recommended in the report of the 1941 committee published in the November, 1941, issue of MINNESOTA MEDICINE on pages 985 and 986. In the 1941 report it was recommended that a city ordinance be passed, in all cities of Minnesota, requiring minimum splint equipment on ambulances and requiring that ambulance attendants have knowledge of first aid and of the application of transportation splints. In order to obtain the passage of such an ordinance there must be considerable preliminary work performed by members of the committee on fractures or by someone who is interested in improving the care of fractures in his community and who recognizes the value of proper first aid and transportation splints in fracture cases. All members of the medical profession must first be sold on the value and practicability of the splint program so that when they are consulted by the local city council members they will know the answers. The former complaint that there was "a danger of putting the practice of medicine in the hands of laymen," with the splint campaign, is no longer heard. The private ambulance companies can be easily sold by giving them demonstrations of the use and value of the splints for the comfort and safety of the patients they are transporting and by showing the ambulance companies that when their improved service becomes known their number of calls will be increased and there will then be less jack-knifing of fracture patients into automobiles for transportation without proper splinting. It is not difficult to persuade the authorities of charity institutions that the costs to the taxpayers will be lowered when charity patients arrive with fractures that have been properly splinted and where further damage to the soft parts in transportation has been prevented. Money will be saved because of a shortened period of hospitalization and of morbidity after leaving the hospital and the patient will spend less time on relief. There will also be less permanent disability resulting from the fracture and consequently the patient will earn more money sooner if he has had proper first aid and transportation splints for his fracture. Before going before the city council it is well not only to line up the members of the profession, the private ambulance companies and the charity hospitals but it is also well to obtain the official approval of the county medical society and the local surgical society so that one can inform the council members that there is not only no local opposition but also that official action has been taken by representative bodies of the medical profession. After having laid this groundwork the value of the ordinance lies in the fact that it has become a recognized necessity in the community and the penalty clause insures continuity of the program.

The ordinance passed in Minneapolis in the spring of 1942 is presented in this report so that others may be saved some of the time and effort required in preparing such a law. This ordinance is more detailed and specific than the one published in the 1941 report of the Committee on Fractures.

AN ORDINANCE

REGULATING PUBLIC AND PRIVATE AMBULANCES, OPERATED IN THE CITY OF MINNEAPOLIS; PROVIDING FOR MINIMUM EQUIPMENT OF SUCH AMBULANCES AND FIRST AID SERVICE THEREIN; PROHIBITING OPERATION WITHOUT A PERMIT FROM THE COMMISSIONER OF HEALTH, AND PROVIDING PENALTIES FOR VIOLATION THEREOF.

The City Council of the City of Minneapolis do ordain as follows:

Section 1. No person, firm or corporation shall operate or cause to be operated in the City of Minneapolis any ambulance, public or private, or any other vehicle commonly used for the transportation or conveyance of the sick or injured, without first securing a permit therefor from the Commissioner of Health as hereinafter provided.

Section 2. Every ambulance or vehicle hereinafter described, before permit is issued therefor, shall be equipped with and, when in service, carry as minimum equipment the following:

(a) Two United States Army hinged ring upper extremity splints, or in lieu thereof, two splints for the upper extremity, approved by the State Department of Health.

(b) Two United States Army hinged half-ring lower extremity splints, or in lieu thereof, two lower extremity splints, approved by the State Department of Health.

Section 3. Every such ambulance or vehicle hereinafter described when in service shall be accompanied by at least one person who has acquired theoretical or practical knowledge in first aid as ambulance attendant and in the application and use of approved splints to arm and leg fractures, evidenced by

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a certificate issued to such person by the State Department of Health or by the Commissioner of Health of the City of Minneapolis, under such rules and regulations as either may prescribe.

Section 4. Application for a permit to operate any such ambulance or other vehicle hereinabove described on the streets of Minneapolis shall be made to the Commissioner of Health upon such form as he shall prescribe, which application shall contain evidence satisfactory to the Commissioner of Health that the person seeking the permit has complied with the minimum standards set forth in this ordinance as to first aid equipment and is prepared to and will furnish an ambulance attendant, as required in Section 3 hereof. If the Commissioner of Health finds that the requirements of this ordinance are and will be met by the applicant as to each vehicle proposed to be operated, he shall issue a permit, upon payment of a fee of One Dollar (\$1.00) for each vehicle, which permit shall expire upon the first Monday in May next following the issuance thereof. Such permit may be renewed by the Commissioner of Health from year to year, upon such evidence as shall be required by the Commissioner of Health that the holder thereof is complying with the minimum requirements of this ordinance and upon payment of an annual fee of One Dollar (\$1.00). No fee shall be required for a permit for an ambulance or vehicle owned and operated by the City of Minneapolis or any of its boards or departments.

Each permit shall be numbered and posted at such place in the interior of the ambulance or vehicle as the Commissioner of Health may require.

Any such permit shall be subject to revocation by the Commissioner of Health for failure to comply with any of the provisions hereof, upon notice and an opportunity to be heard.

Section 5. Any person violating the provisions of this ordinance shall, upon conviction thereof, be punished by a fine of not to exceed One Hundred Dollars (\$100.00), or by imprisonment for not more than ninety (90) days.

Section 6. This ordinance shall take effect and be in force from and after the first Monday in May, 1942; provided, that applications for a permit hereunder may be made prior to said day, after the passage and publication hereof, for a permit beginning upon said first Monday in May.

Passed April 24, 1942. W. Glen Wallace, President of the Council.

Approved April 24, 1942. Marvin L. Kline, Mayor

Attest: Chas. C. Swanson, City Clerk.

In the above Ordinance the United States Army splints have been mentioned on the theory that when better splints are made the Army will use them. Furthermore many members of the medical profession and of the laity who are in the Army will be familiar with these splints on their return home and will expect to find them available.

There has been some objection to the hinged ring upper extremity splint because of the danger of over-pulling and of pressure paralysis due to the traction applied. There are very few instruments in surgery which cannot be wrongly used. Every movie film and nearly every paper on the subject has called attention to this danger which also exists, in part, with every case where crutches are worn. It might be mentioned that our attention has been called to cases where the lower extremity splints has been wrongly applied. There is still some objection to the use of traction type splints in cases where one end of the bone in a compound fracture has penetrated the skin and is still protruding. This point was thoroughly discussed in the 1941 report. The uses and values of these splints in compound fractures is now again being demonstrated in the present war where they are being applied by private soldiers. It should also be noted that in the ordinance improved splints or substitute splints have been allowed for subject to their being approved by the Department of Health.

ROSCOE C. WEBB, M.D., *Chairman*

HISTORICAL COMMITTEE

Your Historical Committee submits the following report: Beginning with January, 1938, and continuing to date, there have been published in MINNESOTA MEDICINE the following articles on the pioneer history of medicine in Minnesota:

Introduction

The background of medical history for northeastern Minnesota and the Lake Superior Region

Organization of the St. Louis County Medical Society

Survey of pioneer members of the St. Louis County Medical Society

Pioneer physicians of the Vermillion and Mesaba Ranges in Minnesota

Medicine in Washington and Chisago Counties

History of medicine in Ramsey County

History of medicine in Hennepin County

History of medicine in Winona County

The missionary as a practitioner

Diseases of the Dakota Indians

Dakota medicine

History of medicine in Dakota County

History of medicine in Brown County

Homeopathic and eclectic medicine in Minnesota

History of the Minnesota State Medical Society (in publication)

Material listed in May, 1941, by Dr. J. M. Armstrong as available for publication

Major papers: Edward Purcell, the first physician in Minnesota

Biography of Dr. William Sitgreaves Cox

Nicollet County

Asiatic cholera in St. Paul

Minnesota Valley Medical Society

Mower and Freeborn Counties

Kittson County

Wabasha County

Goodhue County

Medical books of W. W. Mayo

Steele and LeSueur Counties

Scott and Carver Counties

Beginning of the Mayo Clinic

Medical Instruction

Medical Journalism

Early practice of medicine in Minnesota

Medical men and fur traders

The advent of the frontier practitioner

Fairchild: First period of practice of medicine

Walling: Pioneer practice in the Northwest

Hospitalization and public health

As the result of this inquiry the following information has been received:

The narratives for Stearns and Benton Counties are under way. The histories for Martin and Faribault Counties (Blue Earth Valley Medical Society) and for Watonwan County are in preparation. A history for Swift County has been promised.

The history for Dodge County has been completed. Biographical data have been collected for Fillmore and Houston Counties and the accounts are being compiled. Investigative work in Olmsted County is being carried out.

Investigators have been appointed in Cottonwood, Jackson, Murray, Nobles, Pipestone, and Rock Counties (Southwestern Minnesota Medical Society), and in Big Stone, Pope, Stevens and Traverse Counties (West Central Minnesota Medical Society).

It is hoped that the members of the Historical Committee will act as representatives of the Committee in the different regions of the state to stimulate the work and bring it to completion.

Joint meeting: At a joint meeting of the Historical Committee and the Council on Friday, November 7, 1941, in Saint Paul, suggestions pertaining to publication of the book were discussed. It was thought at that time that the book might include histories of the State Board of Health, the State Medical Association, the State Board of Medical Examiners, state hospitals, medical schools, special medical societies and medical journals published in Minnesota.

Your Committee wishes to make three recommendations:

1. That the collection of historical data continue and that a working questionnaire for use by the historical investigators be printed by the State Medical Association.

2. That publication of the book be deferred for the duration of the present war emergency unless there is presented some method more practical than that now under consideration.

3. That steps be taken to secure an editor who will correlate the material so as to produce at a future date a concise, coherent history of two or more volumes.

M. C. PIPER, M.D., *Chairman*

COMMITTEE ON INDUSTRIAL HEALTH

Minnesota is in the upper third of the states so far as the number of workers in industry is concerned and industrial medicine is therefore more important here than many physicians have hitherto believed.

At its meeting in March of this year, the Committee on Industrial Health formally endorsed the entire program of the new Division of Industrial Health of the State Department of Health. Also they took action to publicize it and encourage the profession to cooperate in the survey on occupational disease begun by the division in February.

The program now underway under the leadership of the division is as follows:

1. To receive and investigate reports of all occupational diseases.

The committee took occasion to point out that some physicians might hesitate to send their reports under the impression that in so doing they might be betraying the companies by whom they are employed. It was generally agreed that, whether diseases are compensable under the law or not, it is essential to take whatever action is possible to control occupational diseases, lessen absenteeism and risks to the plant.

2. To promote employment of full-time or part-time physicians and nurses.

3. To provide properly equipped first-aid rooms and maintain sickness records.

4. To encourage use of preemployment and periodic physical examination, including routine Wassermann tests,—though the tests should not be used as a means of discrimination against employees who secure adequate treatment and do not present a hazard to fellow employees.

Dr. Foker reported to the committee that efforts of his Division are now concentrated on defense industries at the request of the United States Public Health Service; that trained engineering personnel are available to make plant

studies and to recommend methods of control for health hazards thus discovered; that plant executives have cooperated cordially with the division in the work.

At the present time the work of the division is financed largely by federal funds since the \$10,000 appropriation asked of the State Legislature did not materialize, though the State Emergency Finance Committee appropriated \$1,750 up to July 1 this year to aid in the work.

It was decided to provide whatever expert assistance might be required to the Interim Committee on Industrial Health of the State Legislature which has been investigating the advisability of changing the present law on compensable diseases generally regarded as incomplete and unsatisfactory. Also to acquaint other organizations, such as the Safety Council, nurses committees, dental groups, of the existence of the committee and suggest that a representative attend their meetings so as to keep the committee informed of their work in this field. Likewise to contact University authorities on the advisability of a more definite course of instruction in the medical school on industrial health and medicine.

In accordance with action taken by the House of Delegates last year a page has been set aside in MINNESOTA MEDICINE each month for discussions on Industrial Health. Short articles are now appearing monthly by members of the committee on practical aspects of plant health and control of disease among workers. A complete analysis of the program of the Division of Industrial Health and especially of the survey on occupational diseases has also appeared in these pages.

It is the hope of the committee that this monthly editorial feature may be practical and valuable especially to general practitioners who will be called upon more and more to consult on health problems with local industries and to treat industrial patients.

The aid of all who are interested in this urgently important subject will be welcomed for this section.

J. L. McLEOD, M.D., *Chairman*

COMMITTEE ON INTERPROFESSIONAL RELATIONS

The first meeting was held on Friday evening, February 27, preceding the County Officers' Meeting. Representatives of the State Board of Nursing Examiners attended.

The purpose of the meeting was to discuss the nursing situation in Minnesota and to consider the resolution pertaining to this matter introduced at the last meeting of the House of Delegates, and referred to the Committee on Interprofessional Relations. More specifically this refers to certain points at issue between the State Board of Nurses' Examiners and St. John's Hospital at Red Wing, the Naevie, of Albert Lea, St. Lucas of Faribault, and St. Francis of Breckenridge.

Miss Halvorson, of the State Board of Nurses' Examiners had prepared charts, very completely showing all details of hospital administration as pertaining to nurses instruction, number of beds, patients in various departments, the present minimum standards of nursing education acceptable to the State Board of Nurses' Examiners, and the minimum standards to be enforced in September, 1942. Careful analysis shows but a slight discrepancy between these requirements and the present existing course of education for nurses in these hospitals.

It was brought out in the meeting that nurses to be officially recognized by the Red Cross must be graduates of institutions approved by the State Board of Nurses' Examiners and this also applies to nurses eligible to service with our armed forces. This illustrates one of the important points to be ironed out with reference to these hospitals, for if their graduates are not approved by the Board they cannot serve in the Army or Navy.

Many of the smaller hospitals in the state whose graduates are not recognized by the State Board of Nurses' Examiners are training their own nurses, and apparently, successfully. It was fully brought out by Dr. Carl Johnson that there is danger of these young women assuming too much responsibility as nurses, and after the present emergency, of their organization with accompanying demands for legal recognition. The question of affiliation with larger hospitals presents many complications, and this problem will require further consideration.

Two constructive suggestions resulted from this meeting; the first suggestion by Mr. Schacht of Red Wing was that there should be organized a liaison committee consisting of three doctors, three members of the State Nurses' Association, and three members of the State Hospital Association, to consider any questions which might properly come before them with reference to difficulties between the hospitals and the State Board of Nurses' Examiners. This idea was acted upon by the Council the following day, and Doctors Carl Johnson, P. F. Meyer, and F. J. Savage were appointed to represent the physicians. The Minnesota Nurses' Association has named Miss Ida M. MacDonald, 815 Essex Street, S. E., Minneapolis; Sister Mary Elizabeth, St. Francis Hospital, Breckenridge; Miss Mabel Korsell, present address, Powell Hall, Minneapolis. The Minnesota Hospital Association has named Mr. John Mitchell, business manager, Colonial Hospital, Rochester, Minnesota; Dina Bremness, superintendent, Community Hospital, Glenwood, Minnesota; and Sister Assumpta, superintendent, Hibbing Hospital, Hibbing, Minnesota.

The second important suggestion originated with Dr. Meyer of Faribault. To quote from his letter:

"We should evolve a forward-looking plan which would be constructive for the future, and not tear down the fine work so far accomplished in the education of our present-day nurses. The plan should take into consideration the present registered nurse, the future nurse, especially in regard to national Red Cross standards, and it should also safeguard the girls going into training in the smaller communities so that if they felt

like going farther in their studies, that the work that they have previously done would be recognized.

"The plan that I would like to propose should involve the organization and supervision by the State Board of Nurses of the smaller community hospitals. The setting up of definite standards would be universally recognized so that these trainees, if they chose, could continue at larger training centers for further training to become registered nurses. If they chose only to take a two-year training period, they could be called certified nurses. Mrs. Hein's suggestion of a central school for basic training of three months or six months, would fit well into such a plan. It would also insure a universal, sound, basic training upon which to build their future education.

"Some such plan, as this, would eliminate Dr. Johnson's protest about a poorer grade of vocational nurse. It would bring into line and under supervision all these smaller hospitals, and it would protect girls going into training in the smaller hospitals. It would not decrease the present standards that have been set up for registered nurses, and it would eliminate the present vicious practice of turning out vocational nurses which, if not curbed, will definitely undermine the present standards of nursing care in Minnesota."

The second meeting of this committee was held at St. Cloud, April 23.

Physicians, dentists, and pharmacists from the following counties were invited to this meeting: Stearns-Benton, Morrison, Todd, Douglas, Pope, Kandiyohi, Swift, Meeker, Wright and Sherburne; also the president and secretary of the State Board of Nurses' Examiners were present—a total of about eighty-five.

Dr. DuBois opened the meeting, and we quote some of his remarks.

"Doctors, dentists, nurses, and druggists are allied in their work and are interdependent and all of us must realize it. We are facing times we have never faced before, and we must have an allied front. In Washington there is a complete setup for socialized medicine. There will be many doctors who at the end of the war will have no particular place to go, and who can be shoved into government positions. We must be militant and let the public know that the ones who will suffer will be the public. Legislation should be watched with the public in mind, and as it affects the public it affects the professions. Anything can happen at the opportune time, and that may be at the end of the present conflict."

Talks were given by Mr. Slocumb, executive secretary of the State Pharmaceutical Association, Dr. DeVries, of the State Dental Association, Miss Newcombe and Miss Halvorson, respectively president and secretary-treasurer, of the State Board of Nurses' Examiners, Dr. A. F. Branton of Willmar, representing the Minnesota State Hospital Association, and Dr. Proshek, of Minneapolis, as well as others who took part in the general discussion.

Miss Newcombe gave a comprehensive exposition of why we are short of nurses at the present time. Student enrollment of nurses has increased 22 per cent from January, 1937, to January, 1942. Graduate registration in the same period has increased 47.3 per cent, but public health nursing from January, 1937, to January, 1941, has increased by 4,000 nurses. Industrial nursing in the same period has increased by 1,000. Airlines and passenger trains have also taken a considerable number. Hospital regulations, providing for eight-hour duty only, have still further decreased the number of available nurses; marriages are in the same class, and lastly the war, with Red Cross and government services. Per one thousand men in the Army, the need is for six nurses, and in the Navy, three nurses. For the same number, seven doctors for the Army, and six for the Navy, and one and one-half dentists. The Army nurses' corps needs ten thousand more nurses before July first.

To off-set some of this shortage there is an increased enrollment of student nurses. Refresher courses are given to nurses who have retired for various reasons. There is a possibility that some former training schools may be reopened. Ward Aids, Red Cross Volunteer Aids, auxiliary hospital workers, and the girls who do active nursing in the smaller hospitals, which are not recognized training schools, are all contributing to off-set the shortage of registered nurses. In Minneapolis a nine months' course for practical nurses is offered by the Vocational and Franklin Hospitals. About one hundred are graduated yearly. Since July, 1941, the Federal Government has allocated \$1,800,000 for nursing education.

It is apparent that the problems coming before this committee are not settled, and will require study over a considerable period of time.

F. J. SAVAGE, M.D., *Chairman*

COMMITTEE ON MATERNAL WELFARE

The Committee on Maternal Welfare has prepared a pamphlet on "Nutrition in Pregnancy" to be distributed by the Minnesota State Medical Association and State Board of Health. The major portion of the energy and time of this Committee has been expended through the subcommittee which is studying the maternal mortalities throughout the state.

In 1940 the maternal mortality rate in Minnesota was 2.2 deaths per 1,000 live births. This figure is only one-half that for the total United States Birth Registration Area and represents the goal of Physicians and Public Health Officers of probably two decades ago. The Maternal Welfare Committee of the Minnesota State Medical Association became interested in the possibilities of further reducing this enviably low maternal death rate and in determining the absolute irreducible rate for the State. The Committee obtained the cooperation of

the Minnesota State Medical Association and the State Board of Health, these two organizations becoming the co-sponsors of a statewide maternal mortality study.

The very nature of the Committee's queries necessitated the formation of a fact-finding organization. To this end the Committee appointed a subcommittee made up of nine representative physicians doing majorly obstetrics and located in various districts of the State. This subcommittee became known as the Maternal Mortality Committee, the duties of which were to formulate plans for the collection of data, to study each death associated with pregnancy, and to evaluate the results of such individual studies.

The State Board of Health has supplied three investigators whose duty it is to collect the desired information. They are relatively young men doing obstetrics and gynecology as a specialty and have within the past few years completed training required for American Board certification. They are part-time employees of the State Board of Health. Their salaries are obtained from funds supplied by the Children's Bureau of the U. S. Department of Labor made available expressly for this study.

Shortly before this study was begun, each practicing physician in the State obtained a letter of notification from the Health Department which stated the purpose of the study, its sponsorship, and plan of survey as well as a request from each to cooperate in making this a complete study as early after the death as possible. The assistance given the investigator conducting each individual study has been most gratifying. However, reports of all deaths of mothers, connected with childbearing, are not being immediately forwarded by letter to the State Board of Health as requested and many deaths are not discovered until reported via the Bureau of Vital Statistics. This means that not infrequently the investigator gets to the scene of action a month or more after the death has occurred. In the interim, events surrounding the death have been forgotten or become unclear and the individual study thereby loses much of its value. The plan is to collect the data from the physician within a few days of the maternal death and prompt reporting of all deaths, though the connection with pregnancy may not seem clear, is urgently requested.

Cases are assigned in rotation to the three investigators who then visit the physician by appointment in order to fill out the form adopted by the Committee for recording of all apparently pertinent data. Besides this, the investigator summarizes the case in chronological order, paying attention to every detail. The case study is then turned over to one of the Committee members who writes a brief summary which includes only such information bearing upon the cause of death. At the next regular meeting of the Maternal Mortality Committee, these cases are presented, all identifying features being withheld. The anonymous case is then discussed from all points of view as regards the merits and demerits of its handling. It is graded on the basis of minimum standards adopted by the Committee for this purpose.

So far, the Committee has acted simply as a fact-finding organization. Each case study is complete in itself and these form excellent material for a basis of group discussions of many of the complications of pregnancy, labor and the puerperium. It is hoped that local medical groups such as hospital staffs, county societies, etc., will utilize these for educational purposes. The Committee would propose that the interested medical group write the State Board of Health, Director of Maternal and Child Hygiene. Some member of the Committee could then meet with the group to present the records as anonymous case studies and act as Chairman of the discussion group if desired.

Though the study has been in progress for less than a year, preliminary surveys indicate that an appreciable further reduction in the rate will be revealed by the end of the first year. In all probability the maternal mortality rate will approach 1.5 per 1,000 live births, i.e., a reduction of almost 50% in the former rate. The absolute irreducible rate may be found to be about one per 1,000 live births.

RUSSELL J. MOE, M.D., *Chairman*

DR. A. N. COLLINS, Duluth, Chairman of Reference Committee on Miscellaneous Scientific reports: It was recommended that the Child Health Committee be continued.

We feel that the work of the Diabetes Committee is a very important function of the State Medical Association. We hope this committee will continue active interest in the dissemination to the profession of such information which they may obtain from time to time in advancing the treatment of diabetes. We recommend a continuation of this committee.

The report of the Medical Testimony Committee was reviewed and found very interesting. The problem of local disagreement in legal testimony still possesses embarrassing features. The committee would suggest consultation from outside the local community in so far as this is possible. The point brought out in the report regarding confidential information in medical testimony is commended.

The report of the Ophthalmology Committee was re-

viewed and the activities of the committee are commended, also its excellent report.

The report of the Fracture Committee was reviewed, and the committee is to be commended for its interest and activity and should be continued.

The report of the Historical Committee was reviewed, and it is very evident that the excellent work being done by this committee is continuing and that it will redound to the credit of the Minnesota State Association. The committee appreciates the devotion to detail in the assembling of information relative to the history of the Minnesota Medical Association and recommends the continuation of this committee and its personnel.

The report of the Industrial Health Committee is very complete and outlines their activities for the year. It is very well presented and has the commendation of the reference committee.

The report of the Interprofessional Relations Committee was received and read with much interest. The comment made in the report that the problems indicated therein are not completely settled and will require further study suggests that this committee should be continued. The reference committee suggests that perhaps a Gallop pole of the medical profession of the state as a whole might be valuable concerning the nursing situation in the state, gathering information as to training courses and length of terms, etc.

The report of the Maternal Welfare Committee was carefully read, and it is felt that the committee is to be commended for the orderly manner in which the information has been assembled and reported. It is recommended that the committee be continued.

Five minutes being allotted to the chairmen of each of the committees, Drs. Kennedy and Piper read their reports to the delegates. The report of the Reference Committee on Miscellaneous Scientific reports was accepted.

The Speaker then called for the report of the Reference Committee on Officers' and Councilors' Reports, Dr. S. A. Slater of Worthington, chairman. The following reports were considered:

REPORT OF THE SECRETARY

In spite of heavy added responsibilities and dislocations occasioned by the war, the Minnesota State Medical Association has carried on a full program of education, organization and public relations during the past year.

Chief among the special wartime tasks which the state office of the association has been asked to assume is the paper, organizational and secretarial work of the Procurement and Assignment Service in Minnesota.

This work has entailed many conferences and committee meetings and very close to the full-time attention of the executive secretary. In spite of it, more than the usual amount of field work has been carried on by the executive secretary whose trips have taken him to all parts of the state attending meetings and conferences, making investigations and generally looking after association interests.

It is obvious that the armed forces must make use of medical organization with its facilities for supplying information and for reaching officers and leaders of local medical societies. It is not at the present time in prospect that the War Department will find funds to finance such services. Physicians are therefore contributing not only their own services, in full measure, to the war effort but financing an important part of the machinery set up by the United States Army to complete its medical personnel.

With severe budget limitations ahead, the state office will continue to carry its share of added work and responsibility and, as in the year past, it will continue also to carry on the forward-looking program of education and social leadership mapped by its committees.

It becomes clear as the war advances that medical organizations will be called upon more and more, also, for enlightened leadership in the health instruction of civilians, in the distribution of scanty medical services and in the provision of care for the needy.

No Truce for Physicians.—There will be no truce for physicians who remain at their civilian posts during this war. They must take care of the civilian population at whatever cost to their previous plans for retirement. They must also unite to protect the status of medical practice and they must be more than ever watchful that no loopholes of reproach are left which will lead to government organization of their services at home.

The general public is keenly aware of the importance of civilian health to the war effort. It will be impatient of ob-

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stacles and it will expect action. So long as physicians are clearly taking the lead through their own organizations in public education about such things as nutrition, preventive medicine, protection of the health of industrial workers and in provision of services to all, regardless of the absence of many of their number in the armed forces, efforts to take control out of their hands are likely to be unavailing.

Leadership in Minnesota.—The Minnesota State Medical Association has firmly established its leadership in Minnesota in the fields of health education and preventive medicine and in the redistribution of physicians to maintain essential services.

This leadership must go on if the position of organized medicine in Minnesota is to be maintained in spite of an active minority which here, as elsewhere, remains alert to seize upon apparent lapses and failure as pretexts for reform.

Office Mailing.—During the past year the program of the association has developed in many directions. The amount of printed matter including posters, pamphlets, packets, leaflets and other publications, all of which originated in the office, was much more than quadrupled. The number of mailing pieces, on a conservative estimate exceeded 82,000 in addition to 830,000 enclosures on nutrition, vaccination and immunization. They were sent out as part of several special association programs.

Vaccination and Immunization.—Anticipating the May day immunization and vaccination program of the Children's Bureau by six months, the state association, in cooperation with the State Board of Health, launched a state-wide campaign to promote vaccination and immunization last November. Radio talks and interviews and newspaper publicity initiated the effort. Two posters, one urging vaccination and the other immunization, were distributed widely over the state, together with leaflets for distribution at meetings and with statements. The result of these activities in nearly all counties of the state was a great increase in the demands for vaccine and toxoid supplied for community programs by the State Board of Health.

Nutrition Program.—The current wide-spread interest in nutrition in which a variety of lay agencies have taken a directing hand clearly called for authoritative guidance and leadership. For that reason and because better nutrition for the civilian population is important to the war effort, an official medical project for better nutrition in this state was inaugurated by the association this spring, with the cooperation and joint financial support of the State Board of Health. Four simple practical pamphlets were published for free distribution in doctors' offices, the first for expectant mothers, the second for the child from two to six, the third for the average family of adults and children and the fourth for those who are overweight. At the same time, posters were prepared bearing the slogan "For a Stronger America Eat More of the Right Foods" and telling how to secure the pamphlets. These posters were sent out widely to grocery stores, food markets of all kinds all over the state and to other public gathering places where they were likely to reach housewives and food buyers. Members who have received the pamphlets are urged to give them wide circulation and to supplement them with nutrition information of authoritative character to patients, and in all public contacts.

Tuberculosis Control.—An important part of the association's expanded program of preventive medicine has been its tuberculosis control project which was sponsored by the Committee on Tuberculosis and which has brought nationwide attention to Minnesota. This project includes an accreditation plan for tuberculosis control by counties and an experiment in county-wide testing of the entire population of Meeker county with a view to extending similar measures to other counties in the state. The plan follows the outlines of the program of the veterinarians for eradication of tuberculosis among cattle and is completely described in the report of the committee. It is in line with the plan of leadership in all public health activities which the medical association has undertaken in Minnesota and it has stirred an unusual amount of country-wide interest as evidenced in the article by Robert Thompson entitled "Worth More than a Cow" which appeared in *Colliers'* and which described the Meeker county project.

Pictorial History.—The pictorial history, "100 Years of Medicine in Minnesota," which marked the centenary of the coming of Christopher Carli, first civilian practitioner to the Northwest territory in 1841, was published by the association last fall. This publication, unique among such efforts, took advantage of the centenary to publish pictures of historical interest and to bring the story up-to-date with as complete a picture outline as possible of the extent and quality of medical services today in Minnesota. The book was sent to all physicians in the state and to libraries, organizations, schools and public officials. It received notice in all national health journals and met with universal approval. Requests for it continue to come in from all parts of the United States but the first printing has been virtually exhausted. A second printing will depend upon the demand and future budgets of the association.

In addition to the above special projects the regular services of the association were carried on as usual.

Packet Program.—The "subject-of-the-month" program by which monthly packets to physicians are coordinated with public health education on the same subjects began as usual in October and ended for the season in May. Requests for the packets climbed to a monthly average of 700 with the number reaching to nearly 1,000 for especially popular packets. Lists

of subjects are included in the report of the Committee on Public Health Education. The thanks of the association are due to the members who provided material for these packets and to the staff of the State Board of Health which provided statistical studies wherever possible. They constitute an ever more popular part of our service to members and the public.

Radio Program.—The weekly broadcasts over WCCO by Dr. W. A. O'Brien continued throughout the year, subject being selected to coincide and supplement packet subjects from October to May. This program is now in its 15th year and the oldest and most popular of all the sustaining programs on WCCO. In addition a large number of interviews and discussion broadcasts have been arranged in connection with special campaigns.

News Service.—The regular news service of the association was converted in January, 1942, from the former weekly news story release to a Question and Answer service to which nearly 200 papers are now subscribing. Each paper was provided with the mat for a standing two-column head bearing the headline "How's Your Health" on each, together with the address of the Committee on Public Health Education and an invitation to send questions to the committee headquarters at the state office for answers in print or by personal response on receipt of a stamped addressed envelope. So far the number of questions received has been highly satisfactory.

County Officers' Meeting.—Every component society in the state was represented at the County Officers' Meeting and dinner held at the Lowry Hotel, Saturday, February 28. The program was given over largely to special war requirements then shaping for medicine and attendance reached the unusual figure of 125. Dr. R. W. Fouts of Omaha, chairman of Procurement and Assignment for the Seventh Corps Area was dinner speaker.

Recruiting.—At the request of officials of the Seventh Corps Area, facilities of the State Office have been placed at the disposal of the Medical Recruiting Board which began operations for Minnesota physicians and dentists, Monday, May 25, at 496 Lowry Medical Arts Building.

The Board is part of two groups of recruiting boards operating respectively in the states east and west of the Mississippi. Officers are empowered to pass upon applications for commission and on physical findings and to administer the oath of office to qualified applicants for commission, in a minimum length of time. The objective is the procurement from the entire country of 16,000 medical officers for the U. S. Army, before December 31, 1942.

Names of applicants are checked with information on file with the office of the association.

Every possible assistance has been given to the recruiting office as part of the wartime service of the association. It is generally understood and agreed by all representatives of organized medicine that the present plan for allocating medical services to the armed forces and at the same time protecting the needs of the civilian population is better calculated to protect both the physicians and the public than indiscriminate recruiting through the Selective Service Boards.

The responsibility for supplying the armed services has been assumed by medical organizations for the first time and much will depend upon the success with which the plans of their organization, the Procurement and Assignment Service, are carried through.

It should be pointed out that there is no lack of disposition in several quarters in Washington to take the whole matter of supplying the extraordinary needs of the time away from the physicians. If that is done, the outlook for the private practice of medicine after the war in the United States will be dark indeed.

Right or wrong, the burden of proof now rests upon hard-pressed physicians. They must carry the load of providing personnel for the armed services and at the same time they must carry forward a vigorous, forward-looking program of preventive medicine and public health which will leave little excuse for government absorption of all medical services at home.

The State Office is equipped to provide the machinery and organization for this work. It depends upon officers and committees of the association to furnish the essential leadership. This they have done in full measure during the past year and the appreciation of all members as well as of the secretary's office should be extended to these men who have responded so willingly to all calls made upon them.

To the full-time staff, also, and to all who have aided in the far-flung program of the organization—but especially to the State Board of Health and its secretary and executive officer, Dr. A. J. Chesley who, with his staff has cooperated fully in every measure designed for the education and better health of the people of Minnesota—the appreciation of the secretary and of the organization should be extended.

It is a fact that without the close working relationship which exists in Minnesota between the State Board of Health and the practicing physicians, Minnesota's fine health record and our smooth, well-oiled machinery for the control and wise direction of all matters concerned with medicine and health in the state would be impossible.

The Committee on Public Policy, its faithful chairman, Dr. Sogge, and our attorney, Mr. Brist, form an integral and essential part of that machinery and their work, and Minnesota's model basic science legislation which they and their predecessors on the committee shaped and carried forward, are still the pattern toward which many other states are striving.

With this solid background of organization and achievement

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there is little to fear except indifference or a false sense of security in our own ranks for medicine in Minnesota.

B. B. SOUSTER, M.D., *Secretary*,
R. R. ROSELL, *Executive Secretary*.

REPORT OF THE TREASURER

The attached statement of cash receipts and disbursements for the year which ended December 30, 1941, was made by Shannon and Byers, Certified Public Accountants, who finished auditing the books of the association February 25, 1942, and found them to be correct in all respects.

A comparative summary of the finances of the association in 1940 and 1941 is provided on page 2 of the statement. It will be noted from this comparison that there was a net profit of \$8,619.84 in 1940 while the net profit for the legislative year of 1941 was \$2,763.35.

In view of the increased budget for 1941, it is obvious that the financial condition of the association continues sound. The program expanded in many directions during 1941 and, in spite of unusual wartime demands and the enlarged odd-year budget there still remains a small surplus.

Delegates and members are urged to study this statement carefully for a better understanding of the administration of association affairs.

W. H. CONDIT, M.D., *Treasurer*.

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDED DECEMBER 31, 1941

CURRENT FUNDS

CASH ON HAND, December 31, 1940:	
American National Bank, checking account	\$ 1,540.49
American National Bank, savings account	1,074.73
American National Bank, exhibit checking account	1,828.26
American National Bank, exhibit savings account	1,305.32
Farmers & Mechanics Bank, savings account	5,281.93
First National Bank, savings account	150.83
First Federal Savings & Loan Association	3,113.05
Minnesota Federal Savings & Loan Association	5,100.46
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	\$20,395.07

CASH RECEIPTS, YEAR 1941:

Dues collected:	
For year 1940	\$ 146.25
For year 1941	33,928.25
For year 1942	3,195.00
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	\$37,269.50
Technical Exhibit rentals collected:	
For year 1941	5,537.50
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	7,860.00
Annual meeting banquet and luncheons	690.20
Bruce Publishing Co. (MINNESOTA MEDICINE)	1,524.77
Interest	168.07
Profit—diabetes committee	162.30
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Total receipts	47,674.84

\$68,069.91

CASH DISBURSEMENT, YEAR 1941:

Special committees:	
Historical	\$ 16.46
Medical advisory	16.41
Medical economics	327.52
Public health education and radio	5,102.75
Public policy	10,977.41
State health relations	50.80
Military affairs	179.52
Unbudgeted committees	372.57
Conferences and meetings:	
Technical Exhibit and Annual Meeting	8,231.28
Delegates and conferences	432.55
Council meetings	236.89
County officers' meetings	371.20
MINNESOTA MEDICINE	5,070.00
Office equipment	1,228.21
Transferred to permanent investment ..	10,000.00
Administrative:	
Executive secretary's salary	5,200.00
Executive secretary's expenses	1,335.06
Office salaries	5,490.00
Office salaries extra help	30.00
Office rent	1,440.00
Office supplies	411.55
Postage	393.30
Telephone and telegraph	323.84
Miscellaneous expense	275.43
Membership expense	230.59
Audit and insurance	274.09
Social security tax	99.01
Periodicals	64.25
President's contingent fund	243.82
Secretary's salary	200.00
Secretary's expenses	79.39
Treasurer's salary	100.00
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Total disbursements	\$58,803.90

CASH ON HAND, DECEMBER 31, 1941:

American National Bank, checking accounts	\$ 368.30
American National Bank, savings account	2,632.92
American National Bank, exhibit checking account	692.06
American National Bank, exhibit savings account	120.50
Farmers & Mechanics Bank, savings account	5,388.36
First National Bank, savings account ..	63.87
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TOTAL CASH ON HAND	\$ 9,266.01

COMPARATIVE SUMMARY

Income:	Year 1941	Year 1940
Income from dues	\$33,734.14	\$33,277.50
Other income	3,583.62	4,943.20
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	\$37,317.76	\$38,220.70
Expenses:		
Special committees	16,871.88	12,492.06
Conferences and meetings	1,060.99	1,126.60
Administrative	16,621.54	15,982.20
	<hr/>	<hr/>
	\$34,554.41	\$29,600.86
NET INCOME	\$ 2,763.35	\$ 8,619.84

THE CHAIRMAN OF THE COUNCIL

The program of the Minnesota State Medical Association has expanded to cover many new fields and activities, during the past year, and the work of the Council which approves each new project has been correspondingly varied and important.

Among projects discussed and approved during the past year the following should be mentioned:

Blindness Survey.—A survey of the eyes of all children under 21 is now being conducted in rural Hennepin county under the auspices of the Minnesota Society for the Prevention of Blindness, and the state association. This survey was undertaken because of the alarming number of eye defects found among selectees and because no information exists at this time about the actual condition of the eyes of children in the general population. At the request of Dr. F. E. Burch of the Minnesota Society, the Council this year appropriated \$500 to this worthwhile study.

Accreditation.—Two counties have already been certified for tuberculosis control under the accreditation program of our Committee on Tuberculosis which was approved by the Council in October and by the State Board of Health at a subsequent meeting. This plan, modeled upon the successful program for control of cattle tuberculosis by the veterinarians, together with the current Meeker county experiment in county-wide tuberculin testing have put Minnesota at the forefront of all the states in tuberculosis control work.

Prepaid Medical Service for FSA Clients.—At the request of representatives of the Farm Security Administration, Council approval was given for the first time to an experimental program in prepaid medical service for FSA clients in two Minnesota counties. Ottertail and Morrison were the counties picked by the Committee on Low Income and Indigent Problems to which the arrangements were referred. No conclusive figures on results are available yet, since the plan has not been in operation for a year, but physicians, clients and FSA officials are working harmoniously in giving the plan a thorough tryout. Permission of the Council has recently been given to add another county to the group, provided local physicians approve.

Program for Children with Heart Defects.—Social Security funds for crippled children have made it possible for the Division of Social Welfare, under whose direction the work will be carried on, to institute an initial program in the Children's Hospital in St. Paul. Only children from nearby counties will be eligible for care. Later the program may be extended.

History.—Material so far gathered by the Historical Committee has been published serially in MINNESOTA MEDICINE and plans for publication in book form have been extensively discussed, both as to material and as to costs. It was decided to make a special effort to secure all material up to January, 1900, from all societies in the state and to ask every society which has not already done so to complete its history to that date as soon as possible. Final plans for publication will be made when all copy is in the hands of the committee, unless war conditions make a further postponement advisable.

Fee Schedule.—The new Schedule of Allowances for Medical Services prepared by the Division of Social Welfare has this year supplanted the earlier schedule and represents a considerable increase in allowances to be paid physicians for relief work. This schedule was drawn up on the basis of careful studies by the Division and also upon findings of a Council committee and the Council has officially affirmed its fairness to all concerned. This action represented a significant milestone in the relations between relief authorities in the state and the doctors of Minnesota. It came as the culmination of

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a new cooperative program set up two years ago through which an official advisory committee of physicians became part of the machinery of the Division of Social Welfare with county advisory committees acting comparably for discussion and adjustment of all problems having to do with medical relief.

Fifty Club.—The Council approved a new section of our organization and a new feature for all annual gatherings with the institution of the Fifty Club at this meeting. This club will be made up of all members who have practiced fifty years or more in Minnesota. Some 60 are eligible for election at this meeting and all who are able to be with us will be guests of honor at the Annual Banquet Tuesday night.

Finances.—The finances of the association continue to be in excellent condition in spite of inroads on income made by the war. A surplus of about \$2,800 remained on our books at the end of the fiscal year. The investment account is examined at intervals by the Council and adjudged to be wisely invested and in good condition to weather the dislocations of the times.

Dues.—The question of payment of the dues of members who leave for service with the armed forces has been discussed at length and, in accordance with the action taken by the House of Delegates in St. Paul, state dues have been remitted for those under grade of captain who applied by letter through their Councilors, showing their need for such relief. Many societies have taken action, however, to pay the dues of their colleagues in action by an assessment upon those who remain at home. This solution to the problem has become more and more popular and has been urged as far as possible upon all component societies by the Council. The work of the state society does not diminish in importance but in fact becomes more urgent as the war effort moves forward. For that reason it seemed necessary to the Council to deny a request from a few members for the return of dues already paid after they had left for active duty. It is as important for those who leave as for those who remain that standards of practice in Minnesota shall not change in their absence.

War Activities.—A resolution promising the aid of the Council and urging the cooperation of all members in promotion of all phases of improvement in civilian health, in cooperation with the Office of Civilian Defense and in the program of the Procurement and Assignment Service was passed by the Council in December.

In conformity with the spirit of that resolution, the state association has greatly expanded its program of public health education and has worked as closely as possible with civilian defense agencies and with the P.A.S.

At the request of Dr. A. J. Chesley, members of the Council agreed to meet with chairmen of city and county defense councils in their districts to coordinate and advise on all matters relating to local health and defense. Several such meetings have already been held and more are to follow.

Nursing.—The nursing situation is serious everywhere but particularly in the small hospitals of Minnesota. It has been brought to the attention frequently of the Council and the House of Delegates and, as a result of a series of joint conferences, a plan for a committee of nine members from the medical association, the Minnesota Hospital Association and the State Board of Nursing Examiners, to thrash out all phases of the question was approved by the Council. Drs. F. J. Savage, St. Paul; C. M. Johnson, Dawson; and P. F. Meyer of Faribault, were appointed to the committee from the medical association.

Appointments.—The Council proposed to the Governor the name of Dr. M. W. Alberts of St. Paul, to succeed himself on the State Board of Medical Examiners, with Drs. G. N. Ruhberg and James Dunn of St. Paul as alternates in that order. Dr. Alberts' term expires this year.

It is impossible to review in full here the routine work of the Council during the year touching, as it does, all manner of committee appointments, budget expenditures, finances, affiliate memberships, new and old problems of all sorts. The work must go on as it has in the past regardless of wartime hardships. This report would not be complete without again calling the attention of the House of Delegates and the membership to the excellent work done by our secretary, R. R. Rosell; the editorial work by Florence Fitzgerald; as well as the fine work done by Marion Hale, Irene Sanders, and Dorothy Peterson in their respective places. So long as the Council retains its present high level of deliberation and personnel, the interest of the public in these matters will be guarded equally with the interests of the medical profession.

W. L. BURNAP, M.D., *Chairman.*

COUNCILOR OF THE FIRST DISTRICT

Membership of the component medical societies of the first district (Freeborn, Goodhue, Mower, Olmsted, Houston, Fillmore, Dodge, Rice, Steele, Wabasha and Winona) has increased from 626 to 638 since the last annual meeting. The names of members who have joined the armed forces of the United States are included in the 638. At present (June 1, 1942) 138 physicians from this district have entered the service. In addition about 20 physicians who compose a hospital unit are expecting orders to active duty. Also, a naval unit composed of 11 physicians may be called in June.

Almost all activities have been dwarfed by those which pertain to the national emergency. In the first district there

are 45 communities, each with a population of more than 500. Of these, 7 fall into the group which is classified as having a population of 10,000 or more. In addition there are 43 incorporated towns each with a population of less than 500.

On April 4 a meeting was held in Rochester under the direction of the executive officer of the State Board of Health. To this meeting were invited—

1. Members of the District Health Section
2. County Defense Council Chairmen
3. City Defense Council Chairmen
4. County Health Officers
5. City Health Officers

Many important issues were clarified and, as a result, work was initiated which has progressed steadily. One of the most tangible values which emerged from the meeting was the plan which was presented by Dr. J. F. Schaefer of Owatonna. This scheme for emergency medical service was so comprehensive that the "Owatonna plan" was immediately adopted as a working basis for plans to fit the needs of other communities of this district. Subsequently, Dr. Lester Breslow, district Health officer, visited Dr. Schaefer and Dr. J. A. McIntyre, city health officer of Owatonna and chief of the emergency medical service. Dr. Breslow secured the details of the plan which, with modification, has been found to meet the needs of other cities of similar class. Two features which should be included in each emergency medical service are as follows: 1. The service should be built around existing hospital and other permanent medical facilities and plans should exist for the employment of auxiliary facilities in case those which are permanent are incapacitated or overtaxed. 2. Any such service should be developed with an idea of permanency; that is, it should be designed for use in civilian disasters such as fires, tornadoes and floods, and not for wartime incidents only.

The chairman of the district health section soon will send a report blank to the chief of the emergency medical service of each community in order to obtain information for the state and national health sections. When filled out, this form will give the following information:

1. The names of the members of the emergency medical committee (The membership of this committee corresponds with that of the state health section committee.)
2. Name of the emergency medical chief and his alternate.
3. How much has been accomplished in conjunction with:
 - a. Civilian Defense Council
 - b. Local Red Cross
 - c. District Health Office
4. The name of the hospital or hospitals, and provisions for emergency beds.
5. Auxiliary hospital facilities, armories, schools, churches and so on.
6. The number of medical nursing teams, available physicians, available graduate nurses, extent of auxiliary personnel, the number of ambulance drivers, stretcher bearers, victory aides, first aiders, cooks, undertakers and so on.
7. Surgical equipment, provisions for transfusions, dressings, instruments, medicaments, anesthetic agents, splints, blankets and so on.
8. Auxiliary ambulances and stretchers.

On May 25, the Minnesota State Hospital Association met in Rochester. Again Dr. Chesley was on hand and he arranged a meeting with Colonel Hunt, district representative from Omaha, and officials of the Hospital Association. Again much valuable information was released.

On May 22, Olmsted County became a tuberculosis accredited county by the award of the Accreditation Certificate for the control of tuberculosis. Dr. Chester Stewart, formerly of Minneapolis and now Head of the Department of Pediatrics of the Louisiana State University School of Medicine, was the guest speaker.

Problems regarding activities of several members of the state association, residing in the first district, have been brought to the attention of the Council and are now in the process of solution.

L. A. BUE, M.D.

COUNCILOR OF THE SECOND DISTRICT

Nine counties in the Second Councilor District have passed resolutions that they will take care of the local and state medical association dues for any member who is serving in the armed forces of the United States. These resolutions have passed practically unanimously. We feel definitely that this is a duty we owe to the members who have to leave their practices and serve to protect us all.

We have all been more or less interested in the strenuous effort that the historical committee of the State Association has been putting forth to obtain a medical history from each county in the state. It has been a very arduous proposition we understand to get anyone interested enough in each county to do this work. One member of our district, Dr. R. C. Hunt of Fairmont, Minnesota, has accomplished something that in our opinion seems to be quite a masterpiece in this regard. He has written a history of Martin County that is very complete and has collected photographs of all the early practitioners in that county. He has had the history typewritten and put together in loose-leaf book form and he is at present working to get the history of Faribault County.

For any delegate who is interested in this line of work, I shall have this booklet at the registration desk at the Duluth

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State meeting so that it may be examined. It might help others to formulate a history of their own county medical organization.

Our district has taken a good deal of interest in the medical economics of the state though they are not neglecting the scientific part in the practice of medicine. They are having many scientific meetings especially in the spring and the fall of the year, also there has been considerable activity in the vaccination and immunization programs.

L. L. SOGGE, M.D.

COUNCILOR OF THE THIRD DISTRICT

The membership of this district has held well, and shows a slight increase over the preceding year. This, I think, shows a healthy condition, and that membership is considered of value to its holders.

The payment of society dues of members in the Service, by the local societies, has, I believe, been generally practiced. This fine gesture of appreciation has been encouraged, with the hope of lessening the burden of the Parent Society, as well as aiding in the maintenance of the membership of those men who are making these sacrifices.

The component societies have cooperated fully with the State Association, and have maintained their high standards in regard to programs and attendance.

The Tuberculosis Program has been carried on with a great deal of satisfaction and success, and immunization against smallpox and diphtheria has been quite generally practiced.

The medical care of the indigent is coming to be more generally considered the responsibility of the public, thus lessening the burden of the medical profession, to some extent.

The Minnesota Hospital Service Association, providing hospitalization on a prepayment plan, is rendering satisfactory service, and is being well received in the farming communities. It is to be hoped that if a plan for prepayment of medical services is ever adopted, that it may serve with equal satisfaction.

The war has not lessened, but rather heightened, the interest in organized medicine by the members of these societies.

This, in the opinion of the councilor of this district, justifies an optimistic outlook upon the future of our profession.

CARL M. JOHNSON, M.D.

COUNCILOR OF THE FOURTH DISTRICT

Affairs in the Fourth District have been running smoothly during the past year. Special interest has been focused on matters pertaining to the war effort and the preparation of proper lists for the Procurement and Assignment Committee, from which to choose available Doctors for Army and Navy service.

One case of threatened malpractice against a doctor in the District has been satisfactorily adjusted through the efforts of the Society's Committee, after personal interviews with those involved.

The Minnesota Hospital Service Association has extended its arrangements with additional hospitals in the District, and one hears but favorable comment in regard to the service.

We have been instrumental in helping to gather data for the Historical Society, and further work in this regard is to be done.

Civilian defense, as it pertains to Doctors and the Hospitals, is being developed.

The program for immunization and vaccination in schools is well taken care of.

Of most importance at the present time is the proper adjustment to war practice for civilian as well as military service, and while this has been put in the hands of a Procurement Committee, your Councilor is frequently called upon to help and advise in this matter.

I wish to express my appreciation for the cooperation of the Society and officers of this District.

A. E. SOHMER, M.D.

COUNCILOR OF THE FIFTH DISTRICT

The most gratifying accomplishment in this district during the past year was the reactivation of the Dakota County Medical Society. A meeting of all physicians of Dakota County who had signified their desire to reconstitute the Dakota County Medical Society was held at the Lowry Hotel, St. Paul, on Friday, April 10, 1942. Dr. L. S. Burns of South St. Paul was elected President and Dr. A. J. Emond of Farmington was elected Vice President, and Dr. A. H. Field of Farmington was elected Secretary-Treasurer. It was a great satisfaction to have this society functioning again as there has been a very definite need for it.

Cooperation was extended to the Minnesota Hospital Service Association in obtaining membership of the Rush City Hospital and the Emond Community Hospital of Farmington, Minn.

Two meetings of the Washington County Medical Society were attended. A very entertaining program was presented at each meeting.

The first meeting of the newly activated Dakota County Medical Society was to be held June 9 at Hastings and the Councilor was scheduled to attend this meeting.

Nothing else of unusual interest has occurred in this district during the past year.

E. M. JONES, M.D.

COUNCILOR OF THE SIXTH DISTRICT

I wish to submit the following report from the Sixth District, comprising Hennepin and Wright Counties.

Membership	May 1, 1941	May 1, 1942
Hennepin County.....	642	663
Wright County.....	18	19
Total	660	682

There are ten applicants for membership at the present time, a number which is considerably below the normal, due to the fact that many prospective applicants are in military service.

As of June 8, 1942, Hennepin County had a total (in all classifications including three Junior members, two visiting members, and three applicants) of 76 members in military service, or under orders to report for duty. In addition, approximately 55 medical men from Hennepin County, who are not members of the Society, are in the service, so that there are about 131 physicians from this District in the service.

The need for any special organization among the remaining physicians in civil practice, to take care of the civilian population, has not yet been acutely felt, and will be met as the occasion arises.

An organization known as Group Health Mutual, formed for the purpose of providing prepaid medical care, attempted, something over a year ago, to enter into a contract with an organized group in Hennepin County for medical care for its clients. The proposed contract was presented before the Executive Committee of the County Society, where it met with opposition. The plan was then altered, so as to include, among those whose services would be accepted by Group Health Mutual, other groups of physicians who could come within the definition of a Clinic, as stated in the contract. This was presented before a special meeting of the County Society, by representatives of Group Health Mutual. The meeting was attended by a large number of members of the Society, and the subject was freely and fully discussed. The consensus of the meeting was that the plan failed to provide free choice of physician by the patient, and that it violated the principles of medical ethics. It is rumored that Group Health Mutual has now under consideration a plan providing free choice of physician by the patient. This would, apparently, remove the most serious objection to the presentation of such pre-payment plan to the public.

STEPHEN H. BAXTER, M.D.

COUNCILOR OF THE SEVENTH DISTRICT

Influences of the war upon physicians in the Seventh Councilor District have intensified medical and scientific interests and decreased concern over economic problems, it appears. This change of interests may be due to the number of physicians called into the service and the consequent heavier demands for medical service on those remaining; or it may be due to the decreased number of indigent persons resulting from war-production employment.

In this district, eleven communities have no physician. Seven of these villages have never had a physician and the remaining four have had a physician in residence only intermittently. All of them are near enough to cities or villages having physicians that adequate medical care is within reach of their residents. In larger villages and cities in the district, induction of physicians into the service has increased the practice-load of the remaining physicians.

In the field of medical economics, the Morrison County Medical Care Plan of the Farm Security Administration has revealed interesting data. Each participating family pays \$22.00 a year for medical care. Of the 450 Farm Security Administration families in the county, 219 are participants. During the first eight months of operation \$2,900 in bills have been presented. Of these, \$2,300 worth have been paid, and \$400 remains in the fund to be distributed among participating physicians in proportion to services rendered at the end of the first year. Thus, 60 per cent has been paid, and distribution of the accumulated \$400 now would raise this figure to 70 per cent. This compares favorably with the amounts paid by indigents, marginally indigent persons and agencies responsible for them. A survey made of the 231 nonparticipating families reveals that only \$400 worth of medical care was had, and of this amount less than 50 per cent was paid.

EDWIN J. SIMONS, M.D.

COUNCILOR OF THE EIGHTH DISTRICT

Practice in the eighth district continues in a manner satisfactory to the profession and pleasing to the citizens (though some still prefer a chiropractor).

I have covered the district as thoroughly as possible and have been impressed with the progress and universal high standards of practice maintained as well as the fine spirit of comradeship exhibited.

There are beautiful, new, well-equipped hospitals recently opened and the older ones show continuous improvement. This is mostly a reflection of the doctors' efforts and they are prepared to turn added facilities to the betterment of the patients.

There are two chief sources of this leaven which is quietly raising our standards.

(1) The excellent work done by the committees of our society in gathering valuable information and dispensing it to the best advantage. This work could not be so well done without the judgment and organization ability of our Secretary, R. R. Rosell; the editorial ability of Florence Fitzgerald

and the cheerful services rendered, each in her place, by Marion Hale, Irene Sanders and Dorothy Peterson.

(2) The short courses offered at the Center of Continuation Study at the University. The opportunities there under the able direction of Dr. O'Brien supported by the faculty of the medical school, of course including the Mayo Foundation, surpass those offered anywhere else in the world and the profession would be a dumb lot if these failed to have the desired effect.

Let us continually look forward so that Minnesota may ever lead the nation and the world.

W. L. BURNAP, M.D.

COUNCILOR OF THE NINTH DISTRICT

Activities of this component of our organization have again kept pace during the past year with current responsibilities and obligations. It may be noted that, as the preliminary reports came in on the raid on Pearl Harbor, the president and executive secretary of our state association were in conference in Duluth with the local committee on arrangements for the preparation of our annual meeting. In the passing six months members have shouldered many added duties, professional as well as civic, in this total war effort. The district has assumed vital importance in the impetus given iron ore production, shipbuilding and manufacturing of military materials.

Twenty-nine members of the society have entered various departments of military service. Through additional assessments their membership has been continued and will be for the duration. The membership has been advised of the need of continuing the important work of the state association.

On May 11, in accordance with the organization of the Health Section of State Welfare Defense Committee, a meeting was held for the purpose of further coordination of the medical phases of civilian defense in the ninth councilor district. Forty representatives conferred the entire afternoon on all matters that concerned health, hospitals, nursing and sanitation as they pertained to the program. The health officers and chairman of defense councils of six cities and seven counties received valuable information from several of the federal and state authorities. The latter included: Senior Surgeon Wallace D. Hunt, Medical Officer of the 7th Corps Defense Region; Mr. James Campbell, Secretary of the Welfare Defense Committee, Minnesota Defense Council; Major Paul Dwan, First Minnesota Battalion. Appreciation is extended Dr. Chesley, Chairman of the State Health Section for his major part in organization of the program. It is felt that this meeting had accomplished a good purpose in clarifying the responsibilities of those concerned in the entire district.

Immunization was recently well extended in a program by the Director of Public Health of Duluth, Dr. M. McC. Fischer. Seven thousand were vaccinated against smallpox and the same number against diphtheria in a single drive. It is estimated that at present 68% of the population is vaccinated against smallpox. In the county area there has been also considerable extension of this program under Dr. C. A. Scherer.

Some time ago, an exhaustive survey was made of medical relief in St. Louis County by the U. S. Public Health Service, which concluded with a formal report of recommendations. Evidence of an assumption of this constructive program is the engagement of the Director of Public Health of Duluth in part-time office to act as medical director for the County Welfare Board. This is a very progressive step, which will be of value to the agency, client and profession. Our contact committee has done excellent work the past year.

On approval of the Council, representatives of the FSA presented an offer to the physicians of Carlton county to participate in a prepaid medical plan, now in effect in two other counties of the state. They decided not to accept the plan for the time being.

F. J. ELIAS, M.D.

DR. S. A. SLATER, Worthington, Chairman of Reference Committee on Officers' and Councilor's Reports:

Report of the Secretary.—The committee takes cognizance of the increasing amount of work that the secretary and executive secretary are called upon to do and want to compliment them on how well they are meeting the unusual situation that is brought on by the war conditions. The report is most gratifying, and we recommend its adoption.

Report of the Treasurer.—This report was examined by the committee, and it was very gratifying to note that the dues for membership for 1941 increased over 1940, and there was a nice surplus each year. The condition of the Association seems to be in excellent shape, and it is recommended that the treasurer's report be adopted.

Report of the Chairman of the Council.—The committee was very much impressed by the report of the

chairman, Dr. W. L. Burnap, on the work of the Council. They seem to be doing everything possible to keep the Minnesota Medical Association in the forefront in advancing medicine. A number of new projects have been undertaken, and excellent judgment has been shown. They modestly admit that it is too early to draw final conclusions. The committee realizes from Dr. Burnap's report that the duty of the Council is ever increasing, but they are doing a most excellent job, and it is recommended that the report of Dr. Burnap, the chairman, be approved.

Reports of the Councilors.—Dr. Buie's report as councilor of the first district was most complete. It shows that the district is in a healthy condition in that the membership in the component societies has increased. The committee was impressed by the large number of physicians in military service at this time, the number being approximately 170. The committee was particularly interested in the emergency relief plan originated by Dr. Schaefer and Dr. McIntyre of Owatonna. They are to be commended on their organization endeavoring to use the existing facilities for not only war emergencies but any other emergency that might arise. It is an undertaking that might well be applied to other communities.

It is highly gratifying in reading the reports of the councilors of the other eight districts to find all in excellent condition. All indicated that the war had brought on conditions which the several districts were meeting in a most gratifying manner. It was gathered from these reports that the physicians throughout the state are arising to the occasion and assuming whatever added responsibility placed upon them. We recommend the approval of these reports.

It was moved, seconded and carried that the reports be accepted.

The Speaker then called for the report of the Reference Committee on State Health Relations reports, of which Dr. O. J. Seifert of New Ulm was chairman. The following reports were considered:

COMMITTEE ON STATE HEALTH RELATIONS

PART A

In response to a letter from Dr. C. E. Proshek, the Council in December, 1940, referred to the Committee on State Health Relations the problem of possible improvement of the coroner system in Minnesota.

The problem has been discussed several times by the committee and has been further studied by a subcommittee under Dr. Boleyn, with the assistance of Mr. Brist, attorney for the Minnesota State Medical Association, Drs. Bell, McCartney, and Clausen of the University Pathology Department, Drs. Giffin and Souster and Mr. Rosell.

While our studies are not yet complete, we believe that:

1. A State Medical Examiner's Office should be established in charge of a Chief Medical Examiner (who would be a competent pathologist with a certificate of the American Board of Pathology) assisted by:
 - a. an Assistant Chief Medical Examiner (with similar unquestionable qualifications) who would be the traveling pathologist, available for assistance to coroners and law enforcement officials throughout the State, and
 - b. a toxicologist (a chemist with adequate special qualifications) who would be similarly available.
2. The State Medical Examiner should have a central office in St. Paul or at the State University and the toxicologist should have an office and laboratory at the State University.
3. The State Legislature should provide funds for the Chief Medical Examiner and his Assistants. We are studying the practicability of a nominal fee charge to counties for work done.
4. Changes in the qualifications and duties of County Coroners and their relationships with the State Medical Examiner's office are desirable if possible.
5. The State Medical Examiner should be given definite and incontrovertible legal authority to order a postmortem examination by a competent pathologist whenever he may feel it to be necessary in the interest of justice.
6. That it should be made mandatory that coroners and others notify the County Sheriff, County Attorney, State Bureau of Criminal Apprehension, and State Medical Examiner of all cases of sudden unattended or suspected violent deaths.

We hope that the members of the State Medical Association will take an active part in discussion of the problem and promotion of some adequate solution. With that in view, we

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have in an exhibit at this meeting copies of various laws in force elsewhere and various other pertinent material, including our suggestions. Inquiries and suggestions sent to the Committee through the Secretary's office will be appreciated.

We hope, because the Legislature will meet next winter, that the House of Delegates will authorize the Council, and the Committee on Public Policy, to bring before the Legislature the proposals that will have been developed after further hearings and discussions.

PART B

It has been reported from reliable sources that efforts to consolidate still further several departments of the state government and to "complete" the so-called "streamlining" begun four years ago in Minnesota by Governor Stassen will be renewed in the next session of the Legislature.

Any attempt to subject departments dealing with public health and medical services to lay domination from other departments of the state government has been regarded from the first as unwise and undesirable by all physicians of the state.

In view of the fact that an effort was made at the last session to subordinate both the State Board of Health and the Division of State Institutions to the Division of Social Welfare, and in view of the fact, also, that further attempts are likely to be made to destroy the independence of the Basic Science Board and the State Board of Medical Examiners, the following plan is proposed by this committee:

1. That the State Board of Health be maintained as an independent board of nine members appointed by the Governor, as they are at present, from recommendations made to him by professional bodies.

2. That, if it is deemed advisable to change the Division of State Institutions, the institutions having to do with health and medical care be subordinated to the State Board of Health as the only competent professional department in the state government, and not to any lay division or department.

3. That the State Board of Medical Examiners and the Basic Science Board be maintained as independent, self-supporting boards and that no move be made to coordinate their functions and income with those of other licensing boards.

T. R. SWEETSER, M.D., *Chairman.*

COMMITTEE ON UNIVERSITY RELATIONS

The Committee on University Relations begs to report that nothing has been referred to this committee during the present year.

Harmonious relations seem to exist between our Association and all departments of the University and especially are we in excellent relations with the Medical School.

B. J. BRANTON, M.D., *Chairman.*

COMMITTEE ON PUBLIC POLICY

Since the last annual meeting of the State Medical Association there has been no legislative session; hence, nothing to report in State legislative matters. But your committee has not been wholly inactive as far as national legislation is concerned.

We have kept in touch with our two United States Senators and all the members of the House of Representatives on several issues pending in Washington. The Minnesota delegation in Congress has been very cooperative and all have promised to do their utmost in opposing certain legislation that we felt would be very detrimental to the public health of the Nation.

We have also urged, and the whole delegation at Washington is doing all in their power to have medical, hospital, dental and pharmacy bills deductible under the new income tax law. In view of the fact that the personal exemptions are constantly being whittled down, and the tax rates increased, it seems to us only fair that the taxpayers be given some consideration along the lines suggested. The Government is stressing the importance of the American people keeping well, and we know of no better way to encourage them than to permit such a deduction. We have contacted Congressman Knutson of Minnesota, who is on the powerful House Ways and Means Committee where the tax bill originates, and he is doing his best to make those expenses deductible. The Treasury Department has recommended a deduction for extraordinary medical and hospital expenses—we do not believe this is the proper solution to the problem, but that it should be approached from the standpoint of encouraging people to safeguard their health and making such expenses deductible up to a certain percentage of income, the same as money expended for church or charitable purposes.

We had hoped that such a provision would have the support of the Board of Trustees of the American Medical Association, but we understand that so far the Board of Trustees has declined to take such action. Dr. William Braasch of Rochester, who is a member of the Board of Trustees, has told us that he has done all he could possibly do to secure such approval. There have been times when we felt tempted to make direct contact with other State Medical Associations in matters such as this, but so far we have not done so.

Your Committee on Public Policy is now appointed in the even numbered years to serve for two years, the reason therefor being self-evident. There have been only one or two changes in the personnel of this committee since the death of Dr. Johnson. We have made no change in the *modus operandi* for the reason that Dr. Johnson was the originator of our present setup and he did such a splendid job that we have not been able to improve on his methods.

Your Committee most respectfully asks that this House of

Delegates bring to every member of their respective societies, the importance of taking an active interest in the 1942 elections. This year the state primary will be in September and the final election in November. In addition to electing a governor, a lieutenant governor, an attorney general and other state officials, 67 state senators and 131 state representatives are to be elected. This constitutes the entire membership of the Legislature. In view of wartime conditions and the many problems that naturally arise during such times, it is most important that our lawmakers from every legislative district, be men and women with good judgment and a desire to do what is best for all the people of the State. Most members of the present Legislature have been extremely conscientious in promoting good public health. Unfortunately, however, there are a few members who have not; the former group should be actively supported in the event they file for reelection, while the latter group should be retired to private life.

L. L. SOGGE, M.D., *Chairman.*

DR. O. J. SEIFERT, Chairman of Reference Committee on State Health Relations: Your Reference Committee on State Health Relations respectfully requests that the House of Delegates accept these reports.

We wish to call your special attention to the report of the Committee on State Health Relations with reference to the improvement of the coroner system in Minnesota, calling for the establishment of a State Medical Examiner's office in charge of a competent pathologist strongly advised.

Dr. B. J. Branton reports harmonious relations existing between our Association and all of the departments of the University, especially with the medical school.

The Committee urgently requests you to study the report of the Committee on Public Policy with reference to legislation. This is very timely and of interest to each and every one of us.

Your Committee respectfully requests the acceptance of these reports.

DR. SEIFERT: I think we have all had knowledge of incompetent post-mortem examinations in case of accident and with testimony given in court on the basis of such examinations. The establishment of a State Medical Examiner's Office, headed by a Chief Medical Examiner, is greatly needed and strongly advised.

In respect to the report of the Committee on Public Policy, the committee strongly urges every member to read and study it. We must watch legislation and maintain our organization. Our dues are our insurance premium, cheap insurance in fact. So let us be alert as Dr. Gavin told us and let us not be niggardly about our dues.

The report of the committee was unanimously adopted by the delegates.

The Speaker then called for the report of the Reference Committee on Lay Education reports, Dr. N. H. Baker of Fergus Falls, chairman (substituting for Dr. R. M. Burns of Saint Paul.)

The following reports were considered.

COMMITTEE ON PUBLIC HEALTH EDUCATION

It will be recalled that by the reassignment of committees made last year by the Council, the chairmen of seventeen scientific committees, together with chairmen of the editorial and radio subcommittees now compose the executive body of the Committee on Public Health Education.

I am pleased to report that two successful and important meetings of the whole committee were held during the year, and at each meeting at least 75 per cent of the committees were represented and made reports.

The first meeting was held in Duluth in July, 1941, and the second was held in connection with the County Officers meeting at St. Paul, February 28, 1942. At both of these meetings the various chairmen or their representatives gave full and detailed reports, and I wish to assure the members of the State Society that none of these committees is idle or dormant.

In this year of upheavals and upsets; of men entering the various services of our country and of traveling about—it does not seem wise or necessary to put into this report much detail or explanation. In the circumstance that I now proceed to list some of our major activities, it must not be assumed therefrom that omission of certain others indicates either lack of appreciation or interest. It simply means that within the reports ultimately coming to the membership through the Council, the efforts of all these committees will be made known.

1. Our central office, through Mr. Rosell and his staff, very adequately presented and commemorated our centennial

with the beautiful photographic reproduction of buildings, doctors, hospitals, personalities—all making graphic and obvious the route whereby our society has attained its commanding position within our state. This booklet should be kept and prized by all our members and all the institutions to which copies were assigned.

2. Reference should be made to the part our committee members took in the County Officers meeting in St. Paul as of February 28. This is an annual roundup, sponsored and financed by our State Society, and the greatest good comes from it. It is likely that county societies, keeping certain individuals like their secretaries in key positions for several years, do secure the advantage that comes from keeping that individual in touch with state events. It might seem more desirable, however, to shift the offices, and give more men contacts thereby with such meetings as this annual conference.

3. The Vaccination and Immunization campaign began with newspaper and radio publicity in November and included wide distribution of two posters, one urging vaccination and the other immunization, together with small leaflets on each for distribution, with doctors' statements, at meetings, etc. The result over the state has been an unprecedented increase in vaccination and immunization, judging by amounts of vaccine and toxoid distributed by the State Board of Health.

4. Nutrition. The great increase in interest in the general nutrition of our people, the advances made in investigation of deficiencies and avitaminoses, have enlisted the interest of your Health Committee. Working with the State Board of Health, four folders have been developed: one on nutrition for expectant mothers, another for the child two to six, a third on nutrition for the average family, and a fourth on reducing, have been sent to members. Various food handlers are also to get posters, also restaurants and drugstores, emphasizing the slogan "For a Stronger America Eat More of the Right Foods," and urging people to ask for nutrition folders that are available from their doctors without charge or cost.

5. The regular Weekly News Service this year has been converted to a Question and Answer service called "How's Your Health"; 160 weekly papers are using the service regularly.

6. The Radio Broadcasts, under the guidance and direction of Dr. William O'Brien, continue with ever-increasing interest and enthusiastic approval of the medical and the lay public.

7. Packet Service—Packets were prepared and distributed as part of the Coordinated Medical and Public Health Program of the Association.

Their popularity is amply attested by the growing demand which has mounted from a monthly average of 400 last year to 650 for the past eight months with requests reaching a high of 976 for one packet and 833 for another. The thanks of the committee and the association are due to the men who have contributed the fine material assembled for these packets.

8. The Tuberculosis Survey is now arriving at a point where results are scoring heavily. In the May 2, 1942 issue of *Collier's Magazine* you will find an article by Mr. Robert Thompson giving a popular version of the work done in Meeker and adjacent counties in following up tuberculosis surveys, and finding the sources within family groups of open cases of tuberculosis. This is a story of the widest human appeal. It is captioned "Worth More Than a Cow"—harking back to the obvious circumstance that there is no longer any tuberculosis in the cattle in Minnesota, but implying that the Mantoux program, if carefully followed up with x-ray films of the positives, goes a long way toward ridding our state of human tuberculosis. The physicians in Meeker and adjacent counties who have given so much of their service and time to this worthy work deserve the praise and commendation they will get not only from the public but from the doctors who more fully appreciate the contribution they have made. Dr. Myers and Dr. Stewart (now in Louisiana) worked for a long time without the medical support which is now accorded them so freely wherever the anti-tuberculosis program pushes on.

9. The Red Cross. Naturally the Red Cross has come to the fore with a situation and a demand unprecedented. Dr. John S. Lundy has enlarged the program at Rochester through some utilization of a method of teaching Red Cross through radio broadcasting. He points out, however, that for varied and obvious reasons our doctors should step into the Red Cross program of teaching, instruction and information to Red Cross groups, with the desire and intention to follow the Red Cross book of instructions and manual. This subject was editorialized in the pages of *MINNESOTA MEDICINE* for the April issue, and the reasons were outlined why, despite the doctor's urge to vary his instructions somewhat according to his own experience and most recent reading, nevertheless, for the good of all concerned and for uniformity, the method devised by the Red Cross should be adhered to as strictly as possible.

10. Wherever possible the Educational Committee expects to cooperate and to lead wherever the war exigencies will dictate. At any time we may be called upon to advance the collection of blood for desiccation on a huge scale to meet the treatment of shock, both civil and military, that may arise at any time. Suggestions are asked for from the membership for any movement along these general lines that seems to any individual to be essential and worthwhile. Such suggestions should be sent directly to Mr. Rosell.

The Committee thanks Dr. Albert Chesley and the State Board of Health for their cooperation in sponsoring the nutritional program and for timely cooperation in all other fields wherever possible.

E. L. TUOHY, M.D., *Chairman.*

EDITORIAL SUBCOMMITTEE OF THE COMMITTEE ON PUBLIC HEALTH EDUCATION

The duties of the Editorial Sub-committee of the Committee on Public Health Education have not changed. It is understood that the desire of the Association is that this subcommittee continue to act in an advisory capacity only. Most of the affairs that would be referred to such a subcommittee can be, and are, taken care of by Mrs. Fitzgerald, of the central office of the Association.

Since the last annual meeting, however, the chairman of the subcommittee was asked to look over the page proof of the pictorial booklet "One Hundred Years of Medicine in Minnesota." These proofs had to be received when available and released immediately. Therefore, it was not possible to call a meeting so that all members of the subcommittee could view the proofs. The chairman did call in for consultation, however, the President of the Association and a member of the Council, who reside in the same city with him.

Also, the chairman of the subcommittee attended a dinner meeting called by Dr. Tuohy, General Chairman of the Committee on Public Health Education. This meeting was held in St. Paul on February 27, 1942. The morning after the dinner the chairman of the subcommittee attended the meeting of the Committee on First Aid and Red Cross. Thereafter he helped Dr. Lundy, chairman of that committee, write a few paragraphs which were turned over to Dr. Tuohy and used by him to further the work of the Committee on First Aid and Red Cross.

Although, as far as the chairman of the subcommittee knows, review of any other material by a member of the subcommittee has not been needed, many activities with an editorial slant have been noted, with interest and approval: (1) the methods used in the vaccination and diphtheria campaigns; (2) the article from the January, 1942, issue of the "Journal of American Insurance" entitled, "Abuse of Medical Testimony—the Minnesota Experiment"; (3) the article from the May 2, 1942, issue of *Collier's*, entitled "Worth More Than a Cow" which was preceded by the editor's gloss reading, "That's what they think of human beings in Meeker County, Minnesota." Since Meeker led the nation in saving cows from tuberculosis it is now doing as much for man.

Moreover, the old standbys, the packets of the month, are always of interest and, when desirable, they emphasize timely topics: Nutrition (October); Influenza and pneumonia (November); Coronary disease (December); Endocrine therapy (January); Emergency surgery (February); Cancer of the breast (April); Poliomyelitis and encephalitis (May).

Other efforts, such as the radio work, the college lectures and the sight survey have been noted. Still others, not mentioned here, doubtless will have their place in reports of other committees.

RICHARD M. HEWITT, M.D., *Chairman.*

SPEAKERS' BUREAU OF THE PUBLIC HEALTH EDUCATION COMMITTEE

The Speakers' Bureau has functioned chiefly this year as the agency through which the College Lecture Course has been arranged and speakers selected.

As in previous years, two lectures were offered to each of the colleges of the state (except the University of Minnesota) and a total of twenty-seven lectures was given in fourteen colleges during the year.

Subjects for the 1941-42 course were:

Healthy Skin and Hair
The Appendicitis Problem
Fit to Fight
Adjusting Women to Their Jobs
Mental Fitness
Saving Sight and Hearing
Quackery, Drugs and Doctors

The following colleges participated:

College of St. Teresa.....	Winona
St. Mary's College.....	Winona
State Teachers' College.....	Winona
Gustavus Adolphus.....	St. Peter
Carleton College.....	Northfield
State Teachers' College.....	Moorhead
Concordia College.....	Moorhead
State Teachers' College.....	Benidji
Worthington Junior College.....	Worthington
College of St. Benedict.....	St. Joseph
St. John's University.....	Collegeville
St. Olaf's College.....	Northfield
Augsburg College.....	Minneapolis
St. Thomas College.....	St. Paul

Speakers were P. A. O'Leary, C. W. Mayo, Rochester; W. A. O'Brien, University of Minnesota; Nora Winther, University of Minnesota; F. J. Hirschboeck, Duluth; F. W. Lynch, St. Paul; J. R. Earl, St. Paul; R. A. Jensen, University of Minnesota; F. T. Becker, Duluth; O. B. Patch, Duluth; J. A. Hilger, St. Paul; D. W. Cowan, University of Minnesota.

Talks have also been arranged in response to requests from parent teacher groups, community health associations, luncheon clubs and church groups.

For county medical society meetings a list of speakers and subjects was prepared for the first time this year under aus-

pices of the Speakers' Bureau. The list was sent to officers of all component societies to aid them in arranging their scientific meetings. Speakers on the list all expressed their willingness to appear without remuneration.

Out of the activity of this bureau over a period of years a small but excellent group of speakers has been developed who can be relied upon to speak effectively before lay groups of all types.

There is no indication that the war emergency will lessen the call for speakers on health and medicine, however, and there is a definite need for more men to undertake this exacting but important phase of public health education.

F. H. MAGNEY, M.D., *Chairman.*

RADIO REPORT

For the past year the Minnesota State Medical Association has sponsored a program each Saturday from 10:15 to 10:30 a.m. over radio stations WCCO, Minneapolis and St. Paul; and WLB, University of Minnesota; also KDAL in the first nine months. The speaker has been William A. O'Brien, Director, Postgraduate Medical Education, Medical School, University of Minnesota.

The last broadcast in each month was sponsored by the Minnesota State Dental Association. The Dental Association has again expressed its appreciation to the medical profession for this cooperative effort. The subject material for each month except during the summer was keyed with the educational packet issued by the Minnesota State Medical Association for physicians.

Radio Station WCCO has given time to the Minnesota State Medical Association each week since April 4, 1928 (over fourteen years) for which we should be duly grateful, as it is the most powerful station in the Northwest.

A new program was started September 25, 1940, over radio station WLB, entitled "Your Health and You." It was given Wednesday from 11:00 until 11:15 a.m. for pupils in school grades, six through nine. Students listened in groups with the teacher. For wider coverage, radio station WLB sent the program over the North-central Broadcasting System (Mutual). The programs were arranged by Dr. William A. O'Brien, who gave each talk. The program is endorsed by the Minnesota State Medical Association and the Minnesota Public Health Association. It was learned through a survey that more than 9,000 school children "attended" these public health classes. If wider publicity and greater cooperation are given to this effort, more junior high schools will take the program next year.

In addition the radio spokesman appeared on the following programs:

University of Minnesota
Physical Education
University of Minnesota
University of Minnesota
Minnesota Public Health Association
Minnesota Society for the Control of
Cancer
4-H Club
School of Agriculture
Minnesota Foundation
Minnesota Hospital Association
Minnesota Hospital Association
Minnesota Hospital Association
Minnesota Hospital Association
Minnesota Hospital Association
Safety Council

August 28	WLB
October 10	KSTP
19	WCCO
November 5	WLB
10	KSTP
December 14	KSTP
February 13	WCCO
March 10	WCCO
29	WCCO
April 12	WMIN
20	WLOL
21	WLB
26	KSTP
May 11	WLOL
June 22	KSTP

SUMMARY

1. The regular weekly radio program sponsored by the Minnesota State Medical Association and given over WCCO by Dr. W. A. O'Brien is now in its 14th consecutive year.

This is the oldest and most popular sustaining program on any station in the Northwest and one of the oldest in the entire United States, and the appreciation of the membership should be conveyed again to Dr. O'Brien for his fine work and to Stations WCCO, WLB and KDAL for their cooperation in this program.

2. In addition to this regular broadcast, the committee this year arranged a series of radio interviews over Stations KSTP, WTCN and WMIN to initiate the state-wide campaign carried on by the association for vaccination and immunization. These programs were supplemented by interviews and announcements on several smaller stations throughout the state.

3. Two round-table discussion broadcasts were also arranged to coincide with the campaign for better nutrition. The latter were given over KSTP. The effectiveness of the entire effort was demonstrated by the surprising number of requests for literature and information that came as a response to the broadcasts. Further development of the round-table broadcast is contemplated as part of the public health education program of the association next year.

4. Station WLB, University of Minnesota, is to be commended for sponsoring Dr. O'Brien in the program for junior high school students. Physicians residing in cities with junior high schools should call this program to the attention of the school authorities.

ROBERT M. BURNS, *Chairman.*

Dr. N. H. BAKER, Fergus Falls, Acting Chairman of Reference Committee on Lay Education: The Refer-

ence Committee to study Lay Education Reports considered the Public Health Education report and recommends it be accepted as submitted and reports it is apparent that the committee as it was reassigned is functioning satisfactorily.

The Editorial Committee Report was also considered as submitted and this committee commends the favorable press maintained.

The Radio Committee Report was considered as submitted and the Reference Committee feels that some expression of appreciation should be made to the people who contributed the radio time for these programs. A word of commendation should be given to Dr. O'Brien for his fine work. It is the feeling of the Committee also that the close coordination between the other various health agencies in the state which heretofore cooperated on this program should be maintained in the future. We recommend acceptance of these reports.

The motion to accept the reports was seconded and unanimously carried by the delegates.

At this point the presentation of reports was interrupted to hear Miss Nora Rolf, representing the Minnesota State Nurses Association.

MISS NORA ROLF: The Minnesota Nursing Council for War Service is a committee created by the Minnesota State Nurses Association and is organized for the purpose of coordinating the efforts of all groups interested in nursing. The membership includes physicians, hospital administrators, nurses, and laymen. The president of the Minnesota State Nurses Association is the chairman.

The organization of the Nurses Battalion of the Minnesota Defense Force is under the Military Division. Major Ruth Boynton is a member of the Nursing Council for War Service.

The objectives of the nursing councils, national, state and local, are: 1. To supply and distribute nursing service to military forces, civilian population and office of civilian defense. 2. To recruit qualified students for schools of nursing.

The responsibilities of the nursing profession might be compared with the four duties outlined by Vice-President Henry Wallace in a speech delivered in New York City recently: "The duty to produce to the limit, the duty to transport as rapidly as possible to the field of battle, the duty to fight with all that is in us, and the duty to build a Peace, just, charitable and enduring."

We nurses have duties to perform in this all-out war effort.

Federal funds for nursing education have assisted materially in this produce-to-the-limit duty. The sum of \$1,850,000 was provided by the federal government for the training of nurses for the fiscal year 1941-1942 which ends June 30. One hundred and twelve schools of nursing in the United States were given assistance, six of which were in Minnesota. Federal funds are granted for three types of programs: 1. Basic professional programs in nursing schools connected the hospitals of at least 100 patients. 2. Refresher courses for inactive nurses. 3. Postgraduate courses in special and clinical fields offered by institutions which are already giving advanced courses.

Minnesota has had the benefit of all classifications. In addition, a program for recruiting and training nurses in public health for jobs in rural communities has been started by the Minnesota Department of Health, and allows stipends to trainees through U. S. Childrens' Bureau funds.

Recruiting of qualified students will be essential in order to fulfill our responsibilities, if nurses are released to the armed forces on the fighting fronts. The Army needs 6 nurses for every 1,000 enlisted men, and the Navy 3 for every 1,000.

The medium for providing nurses for the Army and the Navy is primarily through enrollment in Red Cross Nursing Service. Minnesota must enroll 825 nurses

in the First Reserve (that is under 40 and unmarried) before September 1 in order to attain the quota of 1,122.

Every nurse eligible for the First Reserve should be enrolled, regardless of the field of nursing in which she is employed. Plans for the assignments to the Corps Area Commanders are made by the National Red Cross Nursing Service Committee, which is a representative group of nurses from all of the various national nursing organizations.

So far, 211 Minnesota nurses have been assigned to military service, ninety from the Saint Paul committee, 181 from the Minneapolis committee, and forty from the Duluth Committee. One hundred and twenty nurses will be assigned to the General Base Hospital, seventy-one from Rochester.

Three nurses are in England with the Harvard Medical Unit.

Seventeen public health nurses have already left the state for war duties. Although this is a small number, it represents approximately 4 per cent of the total number of active public health nurses in the state.

Minnesota nurses have responded exceptionally well in the development of war nursing activities in practically every county in the state.

In Red Cross Home Nursing. Seven hundred eighty-eight nurses have attended institutes at which they received assistance in their teaching of Red Cross Home Nursing classes. One thousand fifteen have been authorized to teach, although only 925 certificates have been issued to women completing the course, before the end of this month, this number will be tremendously increased. The Minnesota quota for Red Cross Home Nursing certificates is 25,780.

In Red Cross First Aid. In many localities nurses have taken First Aid and Instructors' courses, and are assisting local physicians in this program.

The R. C. Volunteer Nurse Aide service in Minneapolis, and I believe in St. Paul and Duluth, are very popular. Before July 1 there will be 350 women in these three cities who will have completed their eighty hours of instruction and will volunteer their services in local city hospitals.

The hospital assistant program under the Office of Civilian Defense trains women to do many tasks which nurses have been doing, but which do not require professional education, i.e., receptionists, messengers, typists, and assistants in the care of the wards and rooms.

The National Youth Administration and the Works Progress Administration are also giving instruction to girls and women, so there are a number of plans for supplementing nursing service. However, there is a saturation point beyond which, for the safety of the patient, these nonprofessional workers cannot go.

An activity which is now in progress, is the following up of the National Inventory of Nurses made in 1941. We anticipate improved planning in the distribution of nursing service when we have a more accurate picture of the nurse supply in various counties. A Guide has been prepared by the National Nursing Council, and is available to communities. It will assist them in making plans for the distribution of nursing service.

The Minnesota Nursing Council for War Service, in its advisory capacity, has serious duties ahead. The success of the entire effort will depend upon the participation of all local communities in the war nursing activities. With foresight, planning and wisdom, we can deliver the necessary services and personnel.

The job must be done!

MISS LOUISE NEWCOMBE, president of the Minnesota State Board of Nursing Examiners: When war was declared, the nursing profession was no more ready for it than was the rest of the nation. Actually we had been hearing for sometime about a shortage of nurses for civilian needs, and occasionally it was said the shortage was due to the State Board of Nurses' Examiners hav-

ing closed so many schools. This most emphatically was not true. Some of the real reasons for the nurse shortage are as follows (and all of this applies not only to Minnesota but to the nation):

During the depression years of 1929-36-37, unemployment amongst graduate nurses caused most hospitals to add many graduate general duty nurses to their staff and correspondingly reduce their student enrollment, so fewer nurses were graduated each year and because graduate nurses could be had for so little, many smaller hospitals closed their schools as it was cheaper to have an all graduate staff than to run a good school.

However, in a few years the economic pendulum swung again, work became more plentiful and a nurse shortage was spoken of.

Changes had been taking place throughout the country which used up the increased supply of nurses.

1. The new and attractive field of stewardess on airlines and passenger trains had taken up a good many nurses. These have been given up now for the duration I understand.

2. Marriages increased with improved economic conditions.

3. Passing of the Social Security Act in 1935 made possible a vast expansion in all forms of Public Health work and public health nurses increased by about 2,000.

4. Industrial nurses increased by about 1,000.

5. Hospitals were affected, too, in various ways.

- (a) Hospital service plans had greatly increased the extent to which the public used hospitals.

- (b) Having become accustomed to a large graduate staff, hospitals found it difficult to dispense with them.

- (c) In line with other branches of industry, hospitals had put in the 8 hour day and 48 hours week and this called for a good many more nurses.

- (d) The increase in specialization, and new and scientific treatments had increased the amount of nursing service rendered to patients.

- (e) Because some of the public has become so "claim conscious" hospitals have found it necessary to keep more extensive records.

The above and other similar duties have become quite time-consuming.

6. Then, too, wherever Defense Industries and war projects have sprung up they have added hitherto unknown problems and hazards.

This was our situation when we went into the war. Our men have now been sent to the four corners of the globe and, of course, our doctors and nurses follow our fighting forces.

Last year (1941) Minnesota nursing schools graduated 829 nurses and this year they expect to graduate 1,300. Minnesota has 29 accredited nursing schools and 3,021 students in those schools as at present. In the U. S. as a whole there are 1,300 accredited nursing schools with 900,000 students in those schools, the only state having no nursing school being Nevada.

Even that 900,000 is not enough. It must be increased to 100,000 this year and 110,000 in 1943. There is urgent need for more nurses and not just more nurses to release graduate nurses for military duty. When the war is over, American nurses in almost countless numbers will be needed to help with the tremendous job of reconstruction. Our National Government has urged that standards be not lowered during this emergency, either in type of students recruited or in content of course offered.

Hospitals are going to face many difficulties of supervision as their skilled workers leave for active service and their places are taken by younger less experienced workers.

The National Nursing Council for War Service suggests that hospitals do the following:

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1. Offer Refresher Courses to older inactive nurses so they may replace those who have left.
2. Economize nursing time by simplifying nursing procedures.
3. Allocate nonnursing duties to nonprofessional workers. We may have to change our ideas as to what duties must be done by nurses and what nonprofessionals can be taught and allowed to do safely.
4. Hold their essential administrative and teaching staff by maintaining good service conditions for all employees as to reasonable workers' hours, salaries and wages, food and housing, etc.
5. Urge all nursing personnel to make it their own responsibility as a national defense measure to do everything possible to safeguard their own health and so avoid lost nursing time.
6. Last and most important—put on a far-reaching recruitment program for well qualified students. The greatest difficulty at present is the competition at high wages from defense industries and business firms for young women in this age group. To offset this, radio talks are being planned and speakers from the nursing groups are going to ask women's clubs and organizations, High Schools and Colleges to be allowed to present the urgent need for more nurses. The National Government has given nursing a high priority rating.

It has also been suggested that the medical profession can render valuable help at this time by

1. Using private duty nurses on the basis of need rather than ability to pay, in other words "rationed" like sugar and tires.
2. Advocating group nursing in hospitals and hourly nursing in homes.
3. Using housekeeping aides in homes, where possible.
4. Economizing in the use of nursing time by careful scheduling of operations and reducing research work calling for nurses' time to that necessary for defense work.
5. Lastly, by trying to interest the right type of young women to take up nursing.

Our Board, as a board and individually through its members, is doing all it can to help in every way, trying to carry out the law with as liberal interpretation as possible and with understanding of present difficulties. Ours is the only accrediting agency for nurses, there is no other. We have moved our Fall examination usually held in November, forward to August in order to accelerate the registration of nurses—561 of whom are ready to write at that time. We may, for the first time, hold a third examination this year—in December.

It may be that some of our hospital schools now closed may wish to re-open and several such schools, if near together, might consider pooling their teaching resources and clinical services.

Our Board is always glad to give advice and assistance to any schools now in operation, or to any who may wish to re-open. As we have no Educational Director at present and the law does not provide remuneration or traveling expenses to Board Members for this work, any hospitals wishing our help would have to pay our traveling expenses and we would be glad to give our own time to this work.

In conclusion—there was never a time when all the allied professional groups—doctors, hospitals, nurses and Board of Examiners needed so much to work closely together. We believe we can rely on your co-operation in all the days that lie ahead and we do assure you of ours.

DR. F. J. SAVAGE, chairman of the Committee on Interprofessional Relations: No one could have listened to the reports of Miss Rolf and Miss Newcombe without being impressed with their scope and sincerity. Nothing needs to be added to Miss Newcombe's lucid

explanation of the shortage of nursing. I believe she did not mention the fact that whereas there were some sixty-four accredited schools of nursing there are now only twenty-nine. Any school which has been closed and wishes to re-open will get all possible assistance as Miss Newcombe said, if it wishes to re-open.

It should be noted that certification by the State Board is necessary to admit any nurse to service with the Red Cross or the Armed Forces. Any hospital which feels it has a grievance against the Board for any reason, may, if it wishes, report the matter to me as chairman of the Interprofessional Relations Committee. A board has been established consisting of three nurses, three doctors and three hospital administrators to hear such grievances. It has not yet met but will function whenever there is a call for its services.

The Speaker thanked Miss Rolf and Miss Newcombe for their reports and then called for the report of the Reference Committee on Medical Economic reports, Dr. M. C. Piper of Rochester, chairman. The following reports were considered:

EDITING AND PUBLISHING COMMITTEE

It again becomes my privilege to submit a report on the publication of MINNESOTA MEDICINE for the calendar year of 1941.

It may be recalled that at the outset of the year we expressed some anxiety concerning the journal during that year. We are happy to state, however, that MINNESOTA MEDICINE has continued to make a good showing financially in 1941, although we had to contend with considerable difficulty in maintaining advertising revenue.

The average number of copies printed during the year and the number of illustrations published per issue happened to be just the same as for the year 1940, the peak year in volume of printing for the journal. The net cash surplus for 1941 amounted to \$1,318.67, which was remitted to the office of the State Medical Association. This remittance represents a substantial sum to the credit of MINNESOTA MEDICINE.

The total number of copies of the journal printed during 1941 was 40,000, an average of 3,333 copies for each of the twelve monthly issues. The total number of pages printed amounted to 1,264, including two 4-page inserts as a center spread in the April and September numbers respectively, on the account of the Center for Continuation Study at the University. Of the total number of pages printed, 936 were devoted to reading material and 328 to advertising. The reading pages include 125 scientific articles, an average of 10½ such papers per issue; 22 case reports, 9 of these 22 reports appearing under the heading "Clinical-Pathological Conference," and 2 abstracts of papers published as part of the Proceedings of the Minnesota Academy of Medicine. There were 191 illustrations published, or an average of approximately 16 illustrations for each issue.

The special section devoted to Medical History filled a total of 79 pages, or an average of 6½ pages per issue; that for Medical Economics, including the special page on Industrial Health, filled 70 pages or approximately 6 pages for each issue. The page on Industrial Health was introduced in the August number, and is being published under the supervision of the State Committee on Industrial Health. Another new section added in 1941 is that of the Clinical-Pathological Conference, which made its initial appearance in the issue for April, 1941. Here appear discussions of interesting cases by members of the Minneapolis General Hospital Staff under the direction of Dr. Frank Andrus.

Other special sections include Editorial, Reports and Announcements of Societies, News Items, Book Reviews, the Yearly Roster of Members, and Minutes of the Annual Meeting of the State Medical Association. The section on news items continues to occupy a large portion of the journal due to the extra effort which is being made to gather material of this kind through all possible sources.

Subscription records for 1941 show a total number of paid member subscriptions of 2,614, with about 57 subscriptions carried the first part of the year as delinquent; paid non-member subscriptions amounted to 168, with 52 delinquent. The total number of subscriptions is 2,891, plus miscellaneous copies to advertisers, advertising agencies, complimentary, exchange and single copy sales of 411. Surplus copies on hand for filling orders for back copies, sample copies to prospective subscribers and advertisers, average about 100 monthly.

As a concession to conditions and at the request of the Co-operative Medical Advertising Bureau, an affiliate of the American Medical Association, the Editing and Publishing Committee approved of placing some of the advertising in the back of the book opposite reading material. This is now the policy of practically all state medical journals, as well as privately owned journals. No advertising is ever placed opposite any of the scientific papers.

The country is now at war, and it is of course impossible to even estimate what the effect of the war will be upon business. Conditions are bad and they are definitely growing worse as time goes on. More and more restrictions are being placed upon business concerns, and this is having its effect upon advertising volume. How severe these conditions will become before they become better only time can tell.

It is encouraging, though, that advertising volume so far for

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the first five issues of the year compares favorably with the corresponding period for 1941. There are indications that medical manufacturers will not be as seriously affected as other industries. We are hoping that in the curtailment of advertising in the large consumer mediums, there is the possibility, although remote, of an increase in such class publications as medical journals. It is realized that this may be wishful thinking, but there is no definite evidence at this time of any loss in advertising volume. This, however, should be regarded only as a statement of conditions which have prevailed during the first five months of the year. They may be entirely different during the other seven months.

E. M. HAMMES, M.D., *Chairman.*

MINNESOTA MEDICINE CASH RECEIPTS AND DISBURSEMENTS

January 1, 1941, through December 31, 1941

SOURCE OF CASH RECEIPTS

Display Advertising (Includes \$615.30 AMA Dividend)	\$10,399.54
Member Subscriptions	5,070.00
Non-member Subscriptions	614.85
Illustrations	61.49
Miscellaneous Income	37.22
Reprint Income	142.57

Gross Cash Receipts\$16,325.67

Less:

Discounts and Commissions	
Advertising	\$1,412.77
Subscriptions	15.75

1,428.52

Net Cash Receipts\$14,897.15

CASH DISBURSEMENTS

Journal Expense\$13,578.48

Cash Surplus for Period	\$ 1,318.67
Accounts Receivable January 1, 1941	\$774.28
Accounts Receivable December 31, 1941	\$909.03

STATEMENT OF INCOME AND EXPENSE AND PROFIT AND LOSS

For the Period January 1, 1941, through December 31, 1941

INCOME		ACCURAL BASIS
Display Advertising (Includes \$615.30 AMA Dividend)	\$10,527.67	
Member Subscriptions	5,070.00	
Nonmember Subscriptions	614.85	
Illustrations	61.49	
Miscellaneous Income	44.43	
Reprint Income	146.78	
	16,465.22	
Less:		
Bad Accounts Charged Off	4.80	
(See Schedule A)		\$16,460.42
EXPENSE		
Journal Expense	13,578.48	
(See Schedule B)		
Discount and Commissions		
Advertising	1,412.77	
Subscriptions	15.75	
	\$15,007.00	
Profit for Period	\$ 1,453.42	

SCHEDULE A

BAD ACCOUNTS CHARGED OFF

Mabel Hanson	\$1.10
Dr. Geo. W. Holt	2.70
Blanche Bakke	1.00
	\$4.80

SCHEDULE B

JOURNAL EXPENSE

Printing Expense (Includes composition, presswork and bindery expense)	\$ 6,286.17
Paper Stock	1,695.64
Illustrations	730.20
Dr. Carl B. Drake—Editorial Fee	1,200.00
Second Class Postage and Postage Used on Minneapolis and Foreign Copies	442.10
Mailing Envelopes (Used for sending out advertiser's copies)	20.25
Bruce Publishing Company Service Fee (Covers business management, stenographic service, mechanical editing of all material, ordering all cuts, making up dummy, mailing out all proofs, bookkeeping, billing and collecting all accounts, keeping up mailing list, etc.)	1,680.00

Bruce Publishing Company (Covers telephone, telegrams, addressograph plates, etc.)	132.00
Advertising Commission (Includes 5% received from advertising placed through CMAB)	1,304.54
1941 Copyright Fee	24.00
Insurance Bond—J. R. Bruce, Bus. Mgr.	5.00
Exchange on Checks	7.88
Stationery	50.70

\$13,578.48

INDUSTRIAL AND CONTRACT PRACTICE COMMITTEE

No ethical infractions in connection with industrial or contract practice have been reported to the committee this year. In one or two instances contract arrangements are being closely watched, but there is nothing of a definite nature to report concerning them at this time.

F. A. OLSON, M.D., *Chairman.*

MEDICAL ADVISORY COMMITTEE

No unusual problems requiring a meeting of the entire committee have arisen during the past year.

The chairman has continued to receive reports of malpractice cases, threatened or actually started, and has studied them all carefully. In numerous instances he has given advice to the Insurer regarding special aspects of individual cases. At the request of the Insurer, also, he has reviewed material submitted and given an opinion as to the best manner of handling the case.

The number of cases submitted to the committee has shown a slight decline during the last year. There may have been other cases, of course, which have not been referred to the committee but the fact that our rate appears to be declining in comparison with last year may be safely taken to indicate that the general rate of malpractice suits is going down. This we regard as a healthy indication.

W. H. HENGSTLER, M.D., *Chairman.*

COMMITTEE ON MEDICAL ECONOMICS

The Committee on Medical Economics functions mainly through its extensive organization of sub-committees. Its work has been reported in detail through the respective chairmen of these committees and will not be repeated here.

In general it should be pointed out, however, that the war has substantially and inevitably altered the social and economic aspects of medical practice. The immediate problems of this committee, as of all other committees of the association, have been concerned during the past year, first, with the provision of medical services to the armed forces and, second, with the essential adjustments which must be made to meet the wartime medical needs of the civilian population.

Interest in new plans for the distribution of medical services, such as medical insurance plans and the extension of hospital insurance plans, continues to be active in many quarters within and without the medical profession, however, and the danger still exists that wartime exigencies may be used to promote hasty and ill-advised measures which, in the long run, will unnecessarily endanger scientific progress.

For that reason, in spite of emergency needs of the moment, physicians must examine every proposal carefully in the light, not only of the immediate need, but of the long-range effect upon medicine and the public welfare.

The section devoted to Medical Economics which appears each month in MINNESOTA MEDICINE is under direct supervision of the chairman and members of the executive sub-committee. Its aim has been to keep members informed specifically upon immediate war problems of medicine and upon progress elsewhere with medical insurance and other experiments in distribution of services, upon trends in legislative action in Washington and upon association policies as reflected in meetings of the Council Delegates and committees of the association.

Suggestions and contributions of officers and members will be welcomed by editors and members of this committee.

GEORGE EARL, M.D., *Chairman.*

SUB-COMMITTEE ON MEDICAL ETHICS OF THE COMMITTEE ON MEDICAL ECONOMICS

The Sub-Committee on Medical Ethics of the Committee on Medical Economics of the State Association has not had any question brought before it concerning the ethics of any individual medical practitioner in the State of Minnesota and therefore there is no formal committee report.

ROBERT D. MUSSEY, M.D., *Chairman.*

COMMITTEE ON LOW INCOME AND INDIGENT PROBLEMS

Several conferences have been held during the past year with officials of the Farm Security Administration. As a result of repeated requests by FSA authorities, the Farm Security plan for prepaid medical service is now being tried experimentally, with Council approval, in Ottertail and Morrison counties. The experiment began only a few months ago and while, so far, it seems to be working out fairly well, not enough time has elapsed as yet to evaluate the results.

Application by FSA officials to introduce the plan in Carlton county, also, was considered carefully and rejected by Carlton county doctors.

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Permission has been granted by the committee and the Council for similar experiments in a few more counties. So far, however, no action on the matter appears to have been taken other than by physicians in the counties concerned or by the F.S.A. The whole question narrows down, therefore, to success or failure in Ottertail and Morrison counties. At least a year would elapse before any conclusions in the matter are attempted.

W. A. COVENTRY, M.D., *Chairman.*

COMMITTEE ON SICKNESS INSURANCE

The Committee on Sickness Insurance begs to report the activities of the Committee during the past year.

Representatives of the Minnesota State Medical Association attended the Conference on Medical Service Plans, which was held in Chicago, Illinois, on February 14, 1942, and herewith submit a summary of the discussions that were had at that meeting.

Conference on Medical Service Plans February 14, 1942, Chicago, Illinois

There are four types of medical service plans:

1. Cash indemnification. There are two types under this group; (a) insurance company plan; (b) employer-employee groups. Less than 6% population in U. S. A. have sick accident insurance.
2. Group clinic or consumer clinic type; 30 such plans in the U. S.—150,000 persons covered. Example: Ross-Loos Plan, Los Angeles—Group Health Association.
3. Voluntary prepaid medical service plans. These plans are sponsored by medical societies; 25 such plans in U. S., 750,000 persons covered.

Reason for conference: to coördinate these plans.

4. Compulsory medical service. Least desirable of all plans. Medical service is a personal relation and should be maintained as such; the welfare of the patient is the primary consideration. The financial aspect should be subordinate. Contract practice restricts choice of physician. Study has been made of 335 plans. A voluntary plan need not lead to a compulsory plan.

At the meeting various types of medical service plans were discussed. (Details of the plans are deleted for brevity's sake.—EDITOR.)

There is no likelihood of a uniform plan throughout the United States. Material on various plans was assembled for a meeting of the American Medical Association held in Atlantic City in June. A committee was appointed to meet with the Board of Trustees of the AMA to consider permanent organization of prepaid medical service plans. Motion was passed to also appoint a committee to meet with a like committee from the Hospital Service plans.

Following the Conference in Chicago, the Committee on Sickness Insurance met and decided to make surveys along three lines of investigation as follows:

1. A sub-committee, composed of Dr. O. I. Sohlberg, St. Paul, chairman, Dr. F. R. Hirschfeld, Minneapolis, Dr. O. W. Holcomb, St. Paul, was asked to consider prepayment service plans that might be workable for urban groups.
2. A sub-committee, composed of Dr. W. W. Will, Bertha, chairman, Dr. J. L. Mills, Winnebago, Dr. E. W. Johnson, Bemidji, was asked to investigate plans that might be workable for rural groups.
3. Further, it is the consensus of opinion that if any sort of a state-wide prepayment medical service plan or plans were to be instituted, it would be necessary to prepare an Enabling Act which would be submitted to our legislature and a sub-committee of the following was appointed to carry on this investigation: Dr. C. A. McKinlay, Minneapolis, chairman, Dr. V. P. Hauser, St. Paul, and Dr. R. R. Cranmer, Minneapolis.

As these subcommittees continued to carry on their work, a meeting of members from various states where prepayment plans have been instituted was held in Atlantic City on June 10, 1942, at the American Medical Association Meeting, at which time reports were made concerning the difficulties and the success and failure that had been met with in their respective plans. (The report of various plans in detail is omitted for brevity's sake.—EDITOR.)

In general it can be stated that the physician is the most difficult one to sell and educate on the plan. Rates have generally been too low. No plan has been in operation long enough to have reliable statistical data. States must have special laws enacted unless operated as insurance company. All plans are under the jurisdiction of the insurance department of each state. The Committee strongly favors gathering of data by the Bureau of Medical Economics of the AMA and meeting once each year in Chicago either in November at the Secretary's meeting or in February at the Medical Conference.

The Committee on Sickness Insurance then met to review the activities of the various subcommittees.

Dr. Sohlberg submitted a report which is as follows:

This is the report of your sub-committee on urban plans for prepayment medical care. There does not exist enough experience to warrant a full report from an actuarial point of view.

The best experience is in Toronto, Canada, where a highly successful plan is working. This plan is successful because of the hard work and the genius of Dr. Jason Hannah. He is firmly of the opinion that any plan not sponsored and controlled by the medical profession will ultimately be run with money as a criterion and not service.

The Toronto plan takes in hospital care, nursing, medicine and medical care. It began in 1937 and has grown from 750 to over 30,000 subscribers. People must buy it; it is not so-

lited. The cost is \$2.50 per month with additional charges for dependents. It is watched closely by Dr. Hannah. He states that about 88 per cent of the medical profession are very much for the plan, about 7 per cent accept it and about 5 per cent oppose it. It has paid well. They have bought a complete filing system and have accumulated a surplus of over \$50,000.00. This plan deserves further study and could well be used as a model.

There is a very good plan functioning well in Wichita, Kansas. This, however, is a postpayment plan sponsored by the local medical society and financed by the Community Chest. Such a plan deserves further study and may be as good a solution as the prepayment plan. At least it is working satisfactorily there.

The medical society asked the Community Chest to pay for the social investigations and they agreed to do so. People needing medical care and who express concern over the cost are referred to the Social Service, who investigate and report. They may suggest full payment, part payment (and what part) or free service, or they may suggest deferred payment. The medical profession as a whole endorses it, work with it and is satisfied. The public is well pleased. This plan is little publicized. Possibly this is the best plan for a city unless a full time medically trained executive is prepared to take over as Dr. Hannah has in Toronto.

Other plans are surgical only (Michigan) or limited in some other way.

In the Twin Cities we are looking with benevolent neutrality at a plan proposed by a Credit Union of the employees of Ramsey County, "Group Health Mutual, Inc." It is very limited as yet but they show the proper spirit of service and it allows a free choice of physician. It costs 90 cents a month. It, however, is an experiment and should be interesting to watch.

These are in our opinion the three best examples for us to watch and follow if we see fit.

OLOF I. SOHLBERG, M.D., *Chairman.*

Dr. Will reports that his subcommittee had difficulty in preparing a report in view of the fact that rural communities have not as yet developed successful plans for conducting a prepayment medical service plan and therefore has no specific suggestions to make at this time.

Dr. McKinlay's subcommittee which was to investigate the Enabling Acts found that they did not have adequate reports on Enabling Acts and therefore postponed making any recommendation until the report from the recent meeting in Atlantic City was submitted. He further reports that the program is too large to arrive at a hasty decision but his subcommittee is willing to continue its efforts in conducting a survey in collecting the material for subsequent meetings.

At the conclusion of this meeting the following resolution was suggested:

The Committee as a whole with the aid of our attorney, the executive secretary and secretary, have made many investigations and in view of the fact that there has been a great deal of study of prepayment and postpayment medical service plans, and inasmuch as the medical service plans in operation are still in their experimental state, your Committee on Sickness Insurance believes that we are not prepared to make definite suggestions concerning the development of a state-wide prepayment or postpayment medical service plan at this time.

The Committee is most willing to supply the data accumulated and to advise those local groups within the state who might be interested in experimenting with and developing prepayment or postpayment medical service plans.

The Committee recommends further study along these lines and to that end recommends:

1. That copies be obtained of all the Enabling Acts enacted in the various states.
2. Copies be obtained of the contracts now used in those medical service plans which are in operation.
3. That definite information be obtained as to the service charges to the contract holders.
4. That information be obtained with respect to the professional fees paid for the various services under such contracts.
5. That all information in the way of suggestions and criticism of the various plans now in operation be obtained from time to time.

The Committee further recommends that the Minnesota State Medical Association send representatives to and participate in the Annual Conference of Medical Service Plan Representatives.

A. W. ADSON, M.D., *Chairman*

DR. M. C. PIPER, Rochester, Chairman of Reference Committee on Medical Economics reports:

Editing and Publishing Committee.—This is a very enlightening report and both the committee and the publishers should be complimented on the successful year. The reference committee feels that it has maintained its standard of excellence.

The item of future revenue and cost was carefully discussed with reference to the possible decrease of revenue from advertising and increased cost of publishing. It was felt that possibly the earnings of the past year might be kept as a definite reserve fund to meet possible future deficits.

It is assumed that the Editing and Publishing Com-

mittee has a definite plan of curtailing expenses, if necessary, due to a reduction in advertising revenue.

The reference committee recommends the adoption of this report.

Industrial and Contract Practice Committee.—The reference committee recommends adoption of the report of the Industrial and Contract Practice Committee, and feels that this is an essential, and its activities should be continued.

Medical Advisory Committee.—The reference committee feels that this report should be adopted, but with the general recommendation that more specific data as to the reduction in malpractice suits as compared with previous years and their method of solution might have been more enlightening to the House of Delegates.

Committee on Medical Economics.—The reference committee recommends adoption of this report.

Subcommittee on Medical Ethics of the Committee on Medical Economics.—The reference committee recommends adoption of this report, but feels possibly that the House of Delegates would like to be enlightened as to the specific functions of the Medical Ethics Sub-Committee of Medical Economics.

Committee on Low Income and Indigent Problems.—The reference committee recommends the adoption of this report.

Committee on Sickness Insurance.—The reference committee recommends adoption of this report on sickness insurance, and wishes to compliment the committee on their activities and the excellence of the report which they have submitted, and recommends to the House of Delegates the adoption of the five proposals made in the committee report. The reference committee would like to suggest that a copy of this report be placed in the hands of the secretary of all component societies, to be read by such component societies and to be kept as a record of reference.

DR. GEORGE EARL, Saint Paul, chairman of the committee on Medical Economics: The work of the Medical Economics committee is done by its various subdivisions and their excellent chairmen whom you will undoubtedly hear later. Responsibility for one phase of the work lies with the chairman and the editorial subcommittee. That is the section on Medical Economics in MINNESOTA MEDICINE. Here we try to give information on economics and the war, on legislation in Washington, sickness insurance, medical care for low income and indigent groups and other related subjects. I want to thank Mr. Rosell, who checks over this material, and Mrs. Fitzgerald, who edits the material, for their assistance in this work.

DR. A. W. ADSON, Rochester, chairman of the Committee on Sickness Insurance: The problem of prepayment and postpayment plans for handling costs of medical service are among the most vital before the medical profession today. You will see in the report of the committee that there has been a great deal of experimental activity all over the country and two conferences in Chicago and in Atlantic City which Mr. Brist and I attended. You will find Mr. Brist's notes on experiences reported elsewhere at these meetings in the report. You will note, also, the findings of our subcommittees on urban and rural plans from Dr. Sohlberg and Dr. Will and on enabling acts from Dr. McKinlay, in the report. Also the recommendations from the committee which, in view of the confused and inconclusive state at this time, suggest further study. You will be interested perhaps in the proposals which Group Health, a cooperative organization of credit unions with offices in St. Paul pre-

sented to the committee. The first plan of this organization was not approved because it did not provide free choice of physician. But it is understood that a policy is being developed which corrects that fault.

As a whole we have come to the conclusion that the demand for sickness insurance comes chiefly from people who have failed to realize the difficulties involved. Also though we are willing to supply data to local groups within the state who may be interested in experimenting with prepaid plans, we are convinced that organization of a state-wide plan is a tremendous undertaking. We do not feel that we are in a position yet to state whether it might be a good thing or not, but we are attempting to learn everything possible from those who are trying it elsewhere.

DR. GEORGE EARL, chairman of the Committee on Medical Economics: Even in Michigan where they started with complete medical service, they have largely restricted their service to surgical benefits only. They were bankrupting themselves under the original plan. Obviously we are not ready yet, on the basis of experience elsewhere, to recommend a state-wide plan here; but we must make it clear to our members that our delay in taking action in Minnesota is not due to neglect nor failure of this committee to function.

DR. ADSON: It appears from Michigan's experience that limited surgical and obstetrical service may be more practical than complete service. It might be noted, also, that one of the chief problems that confronts all such undertakings as this is the problem of selling. The people don't just come and ask for the service and neither do the doctors accept it wholeheartedly. A great deal of missionary work is required to make it a going concern. There is also the problem of finding an administrator, preferably a doctor, who will be willing to give up his practice to develop the organization. In dealing with this entire matter the committee has been very careful, furthermore, not to say or do anything that might lay the medical profession in Minnesota open to charges of monopoly or of attempting to obstruct the development of the movement toward new plans for covering cost of medical service.

It was brought out in discussion between Dr. Adson, Dr. Earl and Mr. Rosell that the Michigan State Medical Society had appropriated a total of \$50,000 to set the Michigan plan in motion and that there is now a deficit of \$60,000, after two years operation, and that the Massachusetts State Medical Society has already appropriated \$20,000 to the development of a plan which is not yet in operation.

At Dr. Adson's request, the Speaker then called on Dr. Gunderson of Wisconsin:

DR. GUNDERSON: Among many objections to sickness insurance as so far developed is the fact that, like all other insurance, it must be on an actuarial basis and must be controlled by experts who know insurance. In Michigan that meant that the plan must be controlled by laymen since no physician was available who was an expert in the insurance field. That is a very serious objection. Furthermore, sickness insurance has to be put at a very low premium to make it attractive enough to sell, too low to pay for proper medical service. The best service cannot be given for the premium charged and so you foster two standards of medicine, one for subscribers to insurance, and one for private noninsurance patients, a very dangerous condition in medicine. If your committee can suggest solutions to these two problems it will deserve great credit.

In response to questions from the floor about the California plan, Dr. Adson said that there is a state-

wide plan there and that it is encountering much the same difficulties as Michigan.

DR. EARL: A group of men who are running both the San Francisco and the California plans talked to me at Atlantic City about their troubles. They had difficulties, for instance, where a group of three doctors were practicing in the same building and were obliged to parcel off patients between them, the internist having one patient for a while, then the eye, ear, nose and throat man, then the surgeon.

DR. SEIFERT: There is disagreement as to fees and as to what bills should be honored and what not honored. Also they have not been able to pay anywhere near the fees stipulated, but have had to settle for a percentage and sometimes a small percentage.

The Speaker then asked for the report from the State Board of Medical Examiners by Dr. J. F. Du Bois, secretary, which was confidential and therefore not recorded.

A Resolutions Committee composed of Dr. R. W. Morse of Minneapolis, Dr. M. J. McMahon of Green Isle and Dr. Clarence Jacobson of Chisholm was then appointed by the Speaker and delegates were asked to submit resolutions to this committee. The House adjourned until 7:30 p. m.

Sunday Evening Session

The Speaker called upon Dr. T. H. Sweetser of Minneapolis to discuss the report of the Committee on State Health Relations adopted at the afternoon session.

DR. SWEETSER: Members of the Committee on State Health Relations will be on hand in the booth reserved for us in the exhibit to discuss the matter of the proposed reform in our coroner system. I hope all of you will come to see us and inform yourselves of the proposal which, as you now know, calls for setting up a State Medical Examiner's office with a travelling pathologist and toxicologist for the state so that legislators can be informed in advance when we go to them with the plan next winter. We found that it will not be possible or advisable to attempt to upset the county coroner system now in existence, but we are sure that the plan outlined will afford a great improvement over the present situation. We may have difficulty now securing qualified men for the office, but we hope to have the setup ready so that we won't have to go back to the present unsatisfactory condition when the war is over. Information will be published on the matter from time to time in MINNESOTA MEDICINE. We hope you will watch for it and discuss it with your legislators.

The Speaker then called upon R. R. Rosell, executive secretary, to discuss the report of the Committee on Low Income and Indigent problems in the absence of Dr. W. A. Coventry of Duluth, chairman of the committee, at another meeting.

MR. ROSELL: The Farm Security group of the Social Security Division came into the state two years ago and secured permission of the Council to experiment with their plan for prepaid medical service to Farm Security clients in two counties, Ottertail and Morrison. After six months' operation in these counties they asked also for permission to go into Carlton and Beltrami counties for similar experiments. The Council approved, pending approval of local physicians in the counties. But the local doctors felt that the plan was not needed and rejected the proposal. Later experiments in Aitkin and Mille Lacs county were approved and doctors there are studying the matter to see if extensions shall be made to those two counties. To date no action has been

taken. The plan will have been in operation one year on September 1 in Ottertail and Morrison counties, but no conclusive figures are available as yet as to the success of the work.

The Speaker then called on Dr. A. J. Chesley, secretary and executive officer of the Minnesota Department of Health. Dr. Chesley's address was of a confidential nature and was not recorded.

The Speaker next called upon Dr. W. F. Braasch of Rochester to report on the work of the National Physicians' Committee.

DR. BRAASCH: The National Physicians' Committee got off to a rather slow start for two reasons. First because difficulties of organization were great and, though we were really a stepchild of the American Medical Association, we were not given the official stamp of approval. Reasons for this failure are now largely overcome, and I am happy to say, since the last meeting of the House of Delegates at Atlantic City, we are now a legitimate offspring and have the green light to go ahead. The second is that we were originally organized through a central committee which actually operated to limit our progress somewhat. Now that is being corrected and we are organizing by states and large communities and are cementing a truly nationwide organization. It must be remembered that propaganda costs a tremendous amount of money and we cannot fight our battles without money. Thus we must not only ask for money once; we must ask for it continually. We have accomplished a great deal with the limited funds available so far but we need much more. You are all familiar with the pamphlets and advertisements that have already been distributed. They have had a surprisingly widespread effect on public opinion. This year we propose to provide 1200 newspapers throughout the country with weekly editorials, and we have embarked also on a program of radio broadcasts. Successful propaganda calls for constant repetition of facts by every possible medium. Beginning this fall our program will increase in volume and activity because it is more than ever necessary to acquaint the public with what medicine in America stands for. There is evidence on every hand that unless a determined stand is made now the independence of medicine in America will be a thing of the past and we shall be controlled by outside forces. The future of medicine, from a scientific as well as economic point of view, depends upon our efforts alone. Unless we hang together on this issue we shall certainly suffer separately. I hope you will bring this message to your members at home and help in every possible way to carry on this work.

DR. F. J. SAVAGE, Saint Paul, chairman of the Minnesota Division of the National Physicians' Committee: Our state-wide committee was the first completely organized committee within the National committee and we had the distinction, last year, of leading all other states in the Union in contributions. I would like to correct the number given by Dr. Braasch of newspapers receiving the NPC editorials. It is, I believe, 12,800, not 1200, and I am sure those editorials, thousands of which are used weekly, as clippings at headquarters show, are having a tremendous effect. Results may be a little bit intangible, but I have it on good authority that President Roosevelt's declaration supporting private practice and the right of the patient to choose his physician, made a few years ago at the dedication of a hospital in Maryland, was directly due to activity of the committee. Soon you will be receiving another letter from Dr. Braasch and myself about the needs of the committee and I hope you will respond as well as you did last year.

The Speaker then called upon Dr. H. Z. Giffin of Rochester, president of the Minnesota State Medical Association, to give his presidential address. (Dr. Gif-

fin's address was printed in the July issue of MINNESOTA MEDICINE.)

The Speaker now called upon Major C. A. Wood of the Medical Officers' Recruiting Board in Saint Paul.

MAJOR WOOD: Before December 7 and the outbreak of war, the Procurement and Assignment Service was set up at the request of the American Medical Association so that, in case war came, the handling of wartime medical service would be kept entirely in the hands of the physicians without government interference. The object was to avoid any wartime dangers of state medicine. The government concurred and the classification of physicians began with a view to determining community needs, and the men who could be spared to enter the armed forces. Committees were set up in each state and, in the meantime, questionnaires were sent to all from the national headquarters of the Procurement Service to provide a complete and up-to-date file on the professional personnel of the country. The majority of the physicians filled out and sent in their questionnaires in good faith. But then came December 7. We got into the war and the emergency became acute. Physicians were needed immediately but they did not respond in sufficient numbers. They have not responded up to the present time. Minnesota has done as well or better perhaps than the average in enlistments—there are, I believe, some 400 Minnesota men in the various branches of the armed forces—but that number is not enough.

The Medical Recruiting Board was set up to get more physicians and to get them quickly because two or three months are required to get a commission through the Surgeon General in Washington and time is short. The Recruiting Boards were directed to facilitate induction and cut that time to a minimum. The purpose is to get all who have been classified as available by the state Procurement Committee to come in to Saint Paul at once and apply for Commissions. We need approximately 400 more in Minnesota by the first of January. Here is our procedure. The first thing we do when a man comes in is to find out if he is available. We get that record from the Minnesota State Medical Association office next door. If he is available, application blanks are typed by the staff. That takes about half an hour and then the man is sent out to Fort Snelling for his physical which takes about three or four hours. Then he goes home and when we get his papers back from Fort Snelling (usually in three or four days) the man is notified. If he is physically qualified he comes in, is sworn in and given a month's deferment to close his business affairs. His papers are sent to the Surgeon General together with the date when he will be available and he is notified from Washington where he is to go and when. Notification from Washington sometimes is delayed a few days beyond the month set, but he is actually in the Army within a week after he applies for a commission.

The Recruiting Board commissions dentists only up to and including thirty-six years. We can give physicians to thirty-six commissions of first lieutenant and, from thirty-seven to forty-four, commissions of captain. For higher commissions applications must be made to the Surgeon General. All this is, of course, on a purely voluntary basis. But the draft may catch up with the man in A-1 who delays too long. Then he is liable to service as a buck private. From ages forty-five to fifty-four we can take applications and make examinations but applications must go to the Surgeon General for approval. Of course, the Army needs young men chiefly and only a small number of these can be majors or lieutenant colonels. A few men with special qualifications can attain those grades but many majors and colonels have already been called in from the reserve and the Army is not interested in many more in those grades.

We have sent out some letters to men who are classified available and so has the Procurement and Assign-

ment committee. As a result, since last May, we have had ninety-three applications from physicians of whom only thirty-three have been sworn in to date. Many came in with physical disabilities but were sent for examinations so that they could be turned down officially. One physician from New York was sworn in as private last week after his New York draft board ordered the Minnesota board to have him inducted. When the order came he tried to apply for a commission but it was too late. I mentioned that case in my letter and a lot of men resented it very much. But the fact is that the Army can get its medical men and surgeon for a private's pay of \$50.00 a month if it wishes—and if the physicians wait for the draft. For the present they are offering commissions but there is no regulation on that and the policy may be changed.

These are some of the reasons given by the young men who are still staying out. There has been a misunderstanding about Procurement and Assignment. Many thought it was a kind of draft and that they could sit tight until they were summoned by Procurement and Assignment. But the Procurement and Assignment Service has no authority to summon men. Some thought the letter sent should be more personal. Others appear to believe the war will be over in a few months. If anybody can cite any good news that has come out of the war since Pearl Harbor outside of Coral Sea and Midway I don't know what it is. Many others want a higher rank or they want to be assured that they will be able to do some special type of service such as ophthalmology. Many have criticized Procurement and Assignment. They say they have not been informed if they are available. There may be some justice in that. In any case, three or four times as many physicians volunteered in the first six months of the last war than have volunteered this time. Col. Hullsiek of the Selective Service has told me that the draft boards do not want to draft physicians into the ranks if they can help it. But the war must go on and physicians will have to be secured in some fashion. I, myself, was in private practice before I went on active duty and I am going to have to try to make a living again when this is over. But I want the privilege of going out and digging for it where and how I please without dictation from the government. The only way to avoid that, as I see it, is for all of us to help make this Procurement and Assignment plan work. It was started at the request of the American Medical Association, and it is up to us to see it through.

LIEUT. COMMANDER MILLER, U. S. Navy: The office for Officer Procurement for the Navy opened about a month ago at 706 Roanoke Building, Minneapolis. We are receiving applications there for junior and senior lieutenants and lieutenant-commanders from physicians up to fifty years of age, though we prefer men of the age group to qualify as junior and senior lieutenants. It takes about six weeks in Washington and one week here to get cleared for commissions in the Navy and we shall be glad to interview and give physical examinations to any who wish to come in. So far the Navy has been more fortunate than the Army and its needs have been supplied from those who come in. Applications for the Navy Air Corps are handled through the same channels. For the Air Corps, applications must be made for commission. After that a request is made to be sent to Pensacola for flight training. Most flight surgeons will go on aviation recruiting service, however, and only a few will actually serve as flight surgeons with the aviation corps.

DR. W. F. BRAASCH, chairman of the State Committee on Procurement and Assignment: Our state committee on Procurement and Assignment, as you know, represents all sections of the state. Dr. Collins is representative from this section; Dr. Gosslee of Moorhead represents the Northwest; Dr. Thabes of Brainerd, the North Central; Dr. MacDonald represents Minneapolis;

Dr. Dougherty, Saint Paul; Dr. Hunt of Fairmont, the Southwest, and I represent the Southeast. In addition, we have committees in each county in the state. All of our decisions are strictly impersonal and impartial and they are not the decisions of any one man.

There seems to be confusion as to the duties of the Procurement and Assignment Committee. As Major Wood has told you, the committee cannot force a man into the service nor tell him he must apply. The committee may call attention to the need but it functions only to classify men as to their availability on the basis of community need. If a man is essential to his community or to industry or to education or war research, we classify him as unavailable. If he can be spared from his community and is not engaged in these special services then he is classified as available. It is apparent, as Major Wood has said, that a number of men have understood that they should await orders from the Procurement and Assignment Committee before applying. But the PAS cannot give orders. It can and does classify as to availability and its decision in that matter is accepted by the draft boards. We have nothing whatever to do with a man's rating with his draft board, nor with the commission which he may be given. PAS has been handicapped because the national PAS was slow to get into action. Delays were due to lack of funds and inability to get procurement issue blanks printed. The Recruiting Boards were set up because the need was urgent and the Surgeon General had to have immediate action. Major Wood has cooperated fully with our state committee and the State Office.

We were interested in the reaction to McNutt's speech at Atlantic City. If you have read it, you will agree, I'm sure, that the situation demanded something of the sort though the manner might have been more delicate. We do not hear quoted those other remarks in which he reiterated that, so far as he is concerned, there will be no attempt after the war is over to socialize medicine, that he will do everything in his power to maintain free enterprise in American medicine.

The point is that we must raise more than 400 men between now and January 1 and there has been a tendency for some reason or other and particularly in the larger communities, to hang back and wait for the younger fellow to go in. I believe that tendency will change now that misunderstandings will be removed by this session. Rest assured that this committee will do all in its power to see that no community suffers for lack of medical service.

Discussion from the floor revealed the fact that many were under the impression that Procurement and Assignment would notify them individually when their services were required and that, having indicated their willingness on PAS questionnaires to serve, they were required to do nothing further until they received such notice. It was revealed that they had been told officially in some instances by representatives of the national PAS that they "should sit tight" until they received such notification. It was explained, in the course of discussion, that the first letters sent out by the state committee were directed to men in the lower age groups who had been classified as available; that this letter should have been regarded as sufficient notice that the recipients were needed; that notices would be sent to older men up to 45 as they were needed; that the fact that not all men in the lower age group had received letters must be assumed to be because some were classified as not available because they were essential to hospital or teaching staffs or for other reasons could not be spared from their communities.

It was agreed that a general letter should go out to all members explaining the precise functions of the Procurement and Assignment Service and that only men in the lower age groups who are now classified as available and those in older ages who are unmarried would be especially asked to apply for commissions for the present. All men under 45 should hold themselves in readiness to apply, however, as they

are needed. It was also pointed out that when the quota for Minnesota is filled (approximately 400 more by January 1) no further applications would be urged by PAS.

Discussion also brought out the fact that any man who is classified as available may appeal to the state committee on Procurement and Assignment for a change in the classification if he believes a mistake has been made. Men who have been placed in A-1 in the draft may also appeal the decision of the draft board within ten days if they feel an injustice has been done.

Major Wood said that Minnesota is doing as well or better than the average in providing medical officers but that the Army needed 5,000 more physicians by the end of July and that Minnesota had produced, through his office, only 33, actually signed up and sworn in, and that he is certain the rest of the states had not produced enough to make up the remainder.

Dr. Braasch said that the action in Alaska has precipitated the need for more doctors quickly, that whereas they had aimed at 6.5 doctors for each thousand men previously they were now asking for 10 doctors per 1,000 and that quick action by the recruiting boards in cooperation with Procurement and Assignment was essential.

It was re-emphasized that draft boards are now accepting the classification as to availability made by PAS and that no physician classified in A-1 who applied for a commission would be inducted as a private for the present, but that he runs the risk, if he does not apply in time, of being drafted, provided he has not appealed on ground of undue hardship and been deferred by his appeal board. There is a physician on each appeal board and all such cases will be given consideration.

Dr. B. B. Souster of Saint Paul, secretary of the Minnesota State Medical Association, then read a newspaper account of the talk made by Manpower Director Paul V. McNutt at the Atlantic City meeting of the American Medical Association.

DR. BRAASCH: The newspaper accounts of McNutt's speech were not complete and did not emphasize his clear statement against state medicine which accompanied the call to doctors to go into the service.

DR. BUTE: I heard Mr. McNutt's speech in Atlantic City and I was aroused but not insulted by it. I fear some of us fail to realize that the Office of Procurement and Assignment was conceded to us by the Army officials in response to the request of representatives of the American Medical Association. Mr. McNutt's technique offended many physicians. Certainly no one would accuse him of courting our political favor. His remarks were intended to arouse members of the American medical profession to a full realization of the gravity and urgency of the problem which he presented. I am not sure that he was entirely successful in doing much more than aggravating many of his hearers. Certainly there has not been a sensational increase in requests for commissions.

The American physician needs the Office of Procurement and Assignment. I hate to think of what his fate might be if the Manpower Board should take over the job of recruiting the medical corps. Mr. McNutt warned us to do the job "or else" and it was that "or else" which caused the irritation. If we will pause and analyze our position, I am sure that we will realize that discreet action is needed or we may be forced to accept an arrangement which may differ little from the civilian selective service.

There is some justification for the attitude of those who have criticized the Office of Procurement and Assignment but any failure should not be attributed to the State Committee or to Major Wood of the Medical Recruitment Board. This committee is not to blame for the present confusion and obviously Major Wood

has dealt with his problem with efficiency and commendable tolerance.

Confusion should be expected. It could scarcely be otherwise while we are attempting to increase an army from thousands to millions within a period of a few months. Lt. Col. Seeley, executive officer for the National Office of Procurement and Assignment, admitted that the early methods were productive of misunderstanding long before the State Committee was created. I believe the state offices of Procurement and Assignment were established in order to iron out difficulties which arose as a result of plans promulgated by the Washington office. You will recall that early we were advised to "sit tight" and to wait. Recently this position was reversed and now the utmost speed is desired. If physicians appear apathetic it is because they have been following instructions; but these instructions did not emanate from the State Office and the members of that committee should not be blamed. Nevertheless, the problem is now an urgent one and the responsibility for its achievement rests squarely on the shoulders of that body of men. They have an immediate and pressing task and they are trying to accomplish it. The physician is not to blame because he appears to be delinquent. As a matter of fact, it is probable that there has been no delinquency on his part in the majority of cases. Right now, however, it is clear that we will improve our position by a discontinuance of these considerations. Instead, we should make an earnest effort to carry out the scheme which is now proposed by Dr. Braasch and his committee and by Major Wood. We need their protective influence. We should consider them our own local committee and through it we can accomplish much more than through an office in Washington or by some form of drafting. If we will do this, I prophesy that there will be a gratifying response to the letter which Dr. Braasch has promised.

Lt. Commander Miller said that the Navy is not sending out any letters, that it is relying solely on men who come into the office voluntarily and that men who do so apply, pass the physical examination and secure recommendation there for commission, will be cleared with their draft boards even though there is a delay of some six weeks in getting their commissions from Washington.

The Speaker then called upon Dr. A. W. Adson of Rochester to give the report of the delegates to the American Medical Association.

Dr. ADSON: The meeting was called to order on Monday, June 8, 1942. A very large proportion of the delegates, in fact larger than any other initial meeting (164 out of a total of 175) were present. The usual reports such as the annual address of the Speaker of the House, the President, and the President-elect were presented and should be read in the *American Medical Association Journal*.

The report of the Secretary, Dr. Olin West, shows the gradual increase in the number of physicians belonging to the American Medical Association. In the last year there has been an increase from 118,441 to 120,701. In the state of Minnesota, the membership has shown a very substantial increase.

The discussion of what to do with doctors who enlist in the Army, so far as the Medical Association dues are concerned, is not a concern of the American Medical Association. There are no dues to the American Medical Association. A doctor pays eight dollars for the *Journal of the American Medical Association*.

There are nine trustees appointed or elected at staggered intervals by the House of Delegates. These are chosen from points throughout the United States, usually because of their activities in things concerned with the American Medical Association. They are elected for two terms of five years each and really constitute the Board of Directors of the American Medical Association. Financially, the gross income for

1941 was \$1,939,127.39; the net income was \$223,347.64. Of this, \$77,424 represents interest on investments. There are employed by the AMA some 644 persons, so one can readily see that this is a large organization.

Another topic was the *Journal of the American Medical Association*. Minnesota averages very high in number of physicians in the state who subscribe to the *AMA Journal*, the average of this state being 57 per cent. This is a fine journal and more physicians should subscribe. Some of the special journals which the Association prints show a profit and some a loss—but they are continuing as before and reducing the size of two of them. During the year a new magazine has appeared on the list called *War Medicine*, which deals with all phases of war and its treatment as far as medicine is concerned, and it should be very much in demand during this period of stress. It has made a very fine and satisfactory increase in its circulation, and the Association feels proud of this magazine.

As you know, there are many subdivisions of the Association and one of them is the Council on Pharmacy and Chemistry which works in conjunction with governmental agencies in the standardization of drugs. Many new drugs have come out during the past year, probably more than usual, and much of the time of this Board has been spent on their proper nomenclature, and as to whether or not they shall meet with the approval of the American Medical Association. Their various publications are available through the *Journal of the AMA*.

The Council on Physical Therapy is continually getting out reports on different physical ailments and classifying physical therapy procedures and machines. Those that are approved at least have merit.

The Council on Foods and Nutrition has been chiefly concerned with the question of fortifying foods with vitamins and certain minerals and still keeping within certain bounds. They have approved, however, supplementing with B₁ along lines suggested by the National Research Council governing the Food and Drug Administration. They are in favor of adding vitamin E to oleomargarine to raise the standard of this product to the level set by the Food and Drug Administration. The question of mixed vitamin therapy was discussed and more or less rejected.

The Council on Industrial Health is a very active group and does a lot of work. They are stressing the question of physical examinations in industry now and care of occupational diseases. They are making progress, and this is a fertile field at this time.

In 1941, 2,806 package libraries were distributed by request to every state in the Union, to the District of Columbia, Canal Zone, Hawaii and Mexico; 12,833 periodicals were loaned in the same period; 6,650 reference questions were answered; 7,279 copies of the directory of the American Medical Association were sold.

The Council on Research has studied artificial respiration, specifications for Ultra-Violet lamps used for disinfecting have been formulated, methods for estimating loss of hearing have been studied.

In 1941, the Bureau of Health Education answered 10,000 letters from laymen, over 300,000 pamphlets were sent out, 88,000 health posters were sent to industrial plants. They have cooperated with the editor of *Hygeia* and for six years this bureau has been on the air. The director and assistant director have appeared before 148 audiences in 16 states. This involved 43,000 miles of travel. They have cooperated with various lay organizations, 4-H clubs, National Congress of Parents and Teachers, American Public Health Association, National Health Council, National organization for Public Health Nursing, county and state medical societies and governmental agencies.

Approximately 10,000 inquiries were submitted to the Bureau of Investigation. They came from physicians, laymen, governmental agencies, business concerns, commercial organizations, newspapers, radio stations and

high school and college students. The subjects most frequently asked about were so-called cancer cures epilepsy, diabetes, coal tar drugs, cathartics and the treatment of colds.

The Bureau of Legal Medicine and Legislation always has many problems on its desk. A good deal of importance this year has been attached to the taxation of Accounts Receivable of a person whose practice has ceased. They are working hard on this problem and will probably straighten it out in a short time.

During this war period there is much concern with the question of priorities in war procedures. If anyone has any definite problems with respect to this question he can write to the AMA and have them straightened out there for him.

It might be stated here, as you have probably noticed in the papers, that the Court of Appeals in Washington has decided adversely to the American Medical Association. It is the understanding that this matter will be carried to the Supreme Court.

In the Bureau of Medical Economics, most of the work during the past year has been switched to the Procurement and Assignment Service. Work has been done on a prepayment medical service plan, but nothing very definite has been brought to a focus and most of the progress has been in study and observation. Do not, however, think for a minute that this question of the economic future of medicine, etc., has been dropped. Progress is always being made although something might overshadow it for the time being. One should constantly, every week, read his *Journal* very carefully in order to keep posted on proceedings of all Councils.

Several incidental things which are not distinctly connected are introduced at this time for your comment. The delegates approved setting up schools for medical laboratory technicians in medical schools approved by the Bureau of Medical Education. Another resolution that was discussed with emphasis was that concerning certificates to prostitutes who are particularly prevalent around Army Camps. Many have been issued certificates of good health by physicians. It was decided that this was decidedly unethical and was not approved of in any way, shape or manner.

An attempt was made by a resolution to increase the number of trustees from nine to eleven, so as to get a better distribution of the trustees as far as geographical areas are concerned. This, however, failed because eleven is too many. A better way to handle it would be to be more careful in the selection of trustees and this year a trustee was elected from California, which section of the country has not had representation before. The same question which came up last year about the *recognition of women* doctors as officers in the Army and Navy was again presented and again turned down. A resolution was introduced approving and encouraging the National Physicians Committee in the work which they have done, but clarified by the statement that this is not a branch, or in any way connected with the American Medical Association as an institution. There was a resolution introduced asking for recognition of the American College of Apothecaries. This was turned down because it is not the policy of the Association to recommend any Associations outside of our own profession.

A highlight of the evening meeting was an address by Mr. McNutt of Washington. His talk was on the need for physicians. He stated the United States needs 5,000 doctors by July 1, 1942, and there seems to be a lack of interest on the part of the medical profession. The Procurement program, he says, may fail. He stressed the need also of medical men in boom towns which have sprung up because of the defense program. If an adequate number of physicians do not volunteer for service, he said, it may be necessary for the government to draft them.

By and large, the attendance was a little less than it has been in previous years, during the first two days. Compared with the last meeting of the American

Medical Association there was only a loss of 300 in registration, at first, but on the third day this loss stepped up to nearly 1,000. The threat of war, the possibility of bombardment, a blackout of Atlantic City, along with the rubber shortage, detracted a great deal from the total. It was our impression, however, that the scientific exhibits and the commercial exhibits were on a par with any previous meeting that we have attended.

It may be said in general, that we believe that the American Medical Association is making very decided progress in furthering our individual interests as well as keeping medicine to the fore. They are keeping a sharp outlook on the question of Socialized Medicine and they are coöperating 100 per cent with the Army and Navy in the question of the Procurement and Assignment Board. If there is anything wrong anywhere, it is with the individual member and not with the Association itself.

Dr. Adson further reported as follows: You may be interested in a brief description of procedure in the House of Delegates. The very able speaker is Dr. Shoulders, a quick-witted Southerner, well versed in parliamentary procedure. Dr. Fouts of Omaha is vice speaker and these two are on the platform continuously with Dr. Olin West to keep them posted on agenda. All delegates receive a report with names of officers, reports from the councils and bureaus, a financial report of the association and names of reference committees. Resolutions are presented from the floor and referred to proper reference committees. Those interested in the resolutions may go before the reference committees. These committees are very active and tear them apart or bring in a majority or minority report or adopt them as the case may be. Anyone may bring in a resolution and it will be considered.

Among this year's resolutions was an interesting one brought in by Ohio and adopted and referred for action to the Board of Trustees which operates in the same manner as our council. This was a resolution to petition the Army for refresher courses for men in service so as to prepare them better for return to private practice. The resolution asking that women physicians be accepted in the medical corps of the Army was turned down again. Dr. Braasch told you about the resolution endorsing activities of the National Physicians' Committee. It was decided, in case the usual big meeting scheduled in 1942 at San Francisco had to be abandoned, the House of Delegates would meet in annual session at Chicago. Dr. Paullin of Atlanta was elected president and Dr. Hassig was reelected trustee.

The Speaker announced that a booth had been arranged by Mr. Rosell in the Armory as headquarters for Major Wood and Lt. Commander Miller who will be there to answer questions about service in the Army and the Navy. He then asked Dr. M. C. Piper, chairman of the Historical Committee, to present the following Necrology report:

NECROLOGY REPORT

Hallward M. Blegen, Warren. Born 1885. University of Minnesota 1909. Died March 26, 1942. Aged 57.

John H. Bong, Jasper. Born 1872. Minneapolis College Physicians and Surgeons 1897. Died December 13, 1941. Aged 69.

Donald R. Claydon, Red Wing. Born 1902. University of Louisville 1926. Died August 28, 1941. Aged 39.

Herman B. Cole, Redwood Falls. Born 1872. University of Buffalo 1896. Died March 29, 1942. Aged 70.

Raymond E. Doering, Minneapolis. Born 1894. St. Louis University 1924. Died January 13, 1942. Aged 48.

Eric O. Giere, Minneapolis. Born 1868. University of Minnesota 1892. Died February 12, 1942. Aged 74.

Norven H. Gillespie, Duluth. Born 1874. Queen's University 1896. Died March 26, 1942. Aged 68.

Robert Graham, Duluth. Born 1865. Wayne University 1893. Died September 22, 1941. Aged 76.

Stephen B. Haessly, Faribault. Born 1875. University of Illinois 1904. Died January 11, 1942. Aged 67.

Arthur L. Herman, Minneapolis. Born 1900. University of Minnesota 1923. Died April 24, 1942. Aged 42.

David J. Jacobson, Bemidji. Born 1891. Drake University 1913. Died April 17, 1942. Aged 51.

Joseph R. Kuth, Duluth. Born 1881. University of Minnesota 1904. Died August 1, 1941. Aged 60.
 J. C. Markoe, Saint Paul. Born 1856. Jefferson Medical College 1882. Died November 28, 1941. Aged 85.
 Charles F. McNevin, Saint Paul. Born 1877. Northwestern University 1908. Died February 16, 1942. Aged 65.
 William W. Moir, Minneapolis. Born 1881. University of Minnesota 1906. Died February 3, 1942. Aged 61.
 Reuben Pennington, Minneapolis. Born 1893. University of Minnesota 1930. Died February 25, 1942. Aged 49.
 John A. Pratt, Minneapolis. Born 1868. University of Michigan 1894. Died February 21, 1942. Aged 74.
 Franklin W. S. Raiter, Cloquet. Born 1889. Milwaukee Medical College 1911. Died October 2, 1941. Aged 52.
 Lemuel M. Roberts, Little Falls. Born 1862. Hahnemann Medical College 1883. Died October 9, 1941. Aged 79.
 Jesse A. Slocumb, Plainville. Born 1873. University of Illinois 1895. Died July 3, 1941. Aged 68.
 Edward O. Thorson, Luverne. Born 1875. Bennett College Eclectic Medicine and Surgery 1906. Died May 27, 1942. Aged 67.
 T. C. Clark, Minneapolis. Born 1853. Rush Medical College 1883. Died June 20, 1942. Aged 89.
 The meeting adjourned until 12:15.

Monday Session

Having ascertained from Dr. Bayley, chairman of the Committee on Credentials, that a quorum was present, the Speaker called for a report of the Council from Chairman W. L. Burnap.

Dr. Burnap thereupon reported that the Council at its Monday morning meeting had agreed to cooperate in every way possible with the work of the State Procurement and Assignment Committee and had directed that an article for MINNESOTA MEDICINE and a statement in the monthly News Letter should be prepared so that not only doctors in the draft age but all older physicians also would be informed.

The Council recommended, also, that the delegates to the AMA whose terms expire December 31, 1942, namely Dr. W. A. Coventry of Duluth and Dr. A. W. Adson of Rochester, together with alternates Dr. J. C. Hultkrans of Minneapolis and Dr. W. L. Burnap of Fergus Falls, be reelected by the House of Delegates.

Dr. E. J. Simons of Swanville, chief of the Medical Unit of the Division of Social Welfare and a member of the Council, reported for the information of the Council that selectees rejected from the draft because of tuberculosis cannot be accommodated for treatment at the present time in the county sanatoria because of lack of beds. These cases should be referred first to the family physician, and then referred by him, if necessary, to the sanatoria.

The request from the Editing and Publishing committee for approval of a new policy with respect to editorial notices about advertising matter in MINNESOTA MEDICINE was referred to the committee for an expression of opinion prior to taking action. It was suggested also that the committee confer with the editor of the *Journal of the American Medical Association* before adopting a policy in the matter.

The resolution presented to the State Conference of Social Work last spring calling for a radical increase in funds to be appropriated to public health work and medical care for the needy was tabled at the last conference of that body, Mr. Rosell reported. Appointment of a committee made up of representatives from the State Board of Health, the State Medical Association and the State Dental Association to meet and study the problem was made by the Conference as a substitute action.

Mr. Rosell also called attention of the Council to the report printed in the *Congressional Record* of a proposed Technical Corps made up of chiropractors to be organized under the Specialists Corps; also a bill introduced into Congress asking appropriation for setting up military medical schools in each Corps Area for two-year courses in medicine.

At the request of Dr. Burnap, Dr. Braasch outlined again the plan of the State Procurement and Assignment Committee to send out a letter to every man classified as available in the state. Those up to the age of thirty-seven plus a few others over thirty-seven who

are single men and can be spared from the community will be asked to apply for commissions at once. The older men up to forty-five will be asked to hold themselves in readiness for a call should the need arise.

Any men who feel that they have been classified mistakenly are to be invited to appeal their cases for a hearing by the state committee. Applications should be made preferably to Major Wood in the Medical Recruiting Board in the Lowry building in St. Paul or to the Surgeon General in Washington. Navy applications are to go to Lt. Commander Miller, Roanoke Building, Minneapolis.

In response to questions, Dr. Braasch reemphasized that the recipients of the letter should apply at once, that Selective Service would also be supplied immediately with names of men who have been made available. It was moved, seconded and carried that the report of the Council be accepted.

Dr. Burnap moved that the delegates pass a vote of confidence in Dr. Braasch and the State Committee on Procurement and Assignment and that they express the willingness of the association to cooperate in every way possible. The motion was seconded and carried unanimously.

The Speaker then called on Dr. R. L. J. Kennedy of Rochester, chairman of the Committee on Child Health to report on the plan for aid to mothers and babies of men in service.

DR. KENNEDY: In a communication from the United States Department of Labor, Children's Bureau, Division of Health Services, to Dr. A. J. Chesley, it was recommended that State Health Agencies develop plans to finance from MCH funds the obstetric, pediatric and hospital care needed by wives and children of men in active military service who are unable to pay for such care.

In order to make this possible the Children's Bureau has set aside 10 per cent of the MCH fund B, appropriated for the fiscal year 1943, which amounts to \$198,000, for allotment to the State Health Agencies wishing to establish these services.

This committee recognizes as does the state association that the problem in question, if it exists, is one which must be met for the duration of the present war.

Pursuant to suggestions received from the Director of the Division of Health Services, Children's Bureau, United States Department of Labor, and in view of the conditions which may develop in our state during the present war, this committee desires to submit to the House of Delegates the following recommendations:

1. That the Minnesota State Medical Association approve of a request by the State Board of Health to the Children's Bureau for funds with which to defray the cost of this service in Minnesota. The amount necessary to carry on such a program in this state cannot be determined with accuracy at this time because of the unknown factors involved. It is suggested, however, that information on which to base the amount to be requested can and will be obtained by the State Board of Health through contact with the various County Welfare Boards and the American Red Cross Chapters and other sources, relative to the present case load and to the recent past experience in this field. While it is impossible to formulate in detail plans for carrying out the program, certain principles should be adhered to in so far as possible.

2. *Eligibility.*—All expectant mothers in the state, irrespective of legal residence, whose husbands are in active military service (U. S. Army or U. S. Navy, including Marine Corps and Coast Guard) and not commissioned officers, should be eligible for obstetric and hospital services provided under the MCH program, without cost to the family, whenever to the knowledge of the state health agency such obstetric and hospital services are not otherwise available. Any child under 1 year of age whose father is in active military service, but not a commissioned officer, may be eligible for pediatric and hospital care under the MCH plan.

(NOTE: "Under 1 year of age" is suggested since the present funds available are insufficient to provide care for all children in these families.)

3. It has been agreed in this committee that in order to
 - (a) expedite the carrying out of the program
 - (b) define sharply the responsibility of the federal, state, and local agencies involved in the program and
 - (c) avoid the cost of separate administration, it is proposed that the County Welfare Boards with the aid and advice of

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their respective medical advisory committees be asked to assume the responsibility of determination of eligibility for this assistance. Suitable forms will be supplied by which requests for this assistance may be made either upon the patient's application to the County Welfare Board or to her attending physician. Such request for assistance properly filled out will be submitted by the County Welfare Board to the State Department of Health for approval and authorization. In cases where the necessity for consultation arises, the proper consultant shall be supplied through arrangement with the county medical advisory committees.

4. Services are to be rendered by doctors of medicine licensed to practice in Minnesota by the State Board of Medical Examiners.

5. Hospitalization should be authorized only in those hospitals that have been listed by the State Board of Health for this purpose.

6. Cost of obstetric, pediatric and hospital service: obstetric and pediatric fees should be paid for in conformity with the average current fees for such services as have been found to obtain in 60 of the 84 rural counties of the state, as determined in the survey of medical fees in Minnesota made by the state-wide medical advisory committee in 1941. It is estimated that the average cost for the care of the normal obstetric case will be \$35; for hospital care for mother and baby \$35; and for care of the baby during first year of life \$30.

7. Payments should be made to the attending physician by the State health agency upon the receipt of a satisfactory maternity or pediatric record, on forms prepared by the State health agency for the use of the attending physician.

8. Hospital care that has been authorized by the State health agency should be paid for at the per diem rate of the hospital concerned. Pediatric care should also be paid for on this per diem basis. Payments should be made to the hospital upon receipt of record showing the date and hour of admission and discharge of each patient for whom care was authorized by the State MCH director.

DR. KENNEDY: This is not a detailed recommendation because details are impossible to work out. It is a statement of principles for your consideration, requested by Dr. Chesley as a guide for State Board of Health action which must be made this month.

It was moved that the recommendation be accepted and the Speaker called on Dr. Helen Curtis of the Children's Bureau in Washington to discuss the matter.

DR. CURTIS: These recommendations appear to meet the principal requirements of the Children's Bureau. Of course they may vary from state to state to meet local situations. For instance, in some states it is not possible to require 10 days' hospitalization because beds are insufficient. In some states it may not be possible to require that all medical participants be graduates of Class A schools. Your recommendations call for regularly licensed practitioners. I do not know what is required for a license in Minnesota.

At the request of the Speaker, Dr. Adson informed Dr. Curtis that licensees in Minnesota are required to graduate from a Class A school, to be American citizens and to pass basic science and State Board of Medical Examiners' examinations.

Dr. Curtis declared that the requirement for license here would more than meet Children's Bureau requirements for those who are to give service under the plan.

Dr. Curtis said, in response to questions from the floor, that it was not expected that Social Security funds would finance the plan beyond the first few months, but that, where necessary, new funds would be asked later for the purpose; that the plan would be administered through the State Board of Health; that each state would make its own estimate of the amount needed to administer the plan and that the staff of maternal and child health divisions of the departments of health would be used generally, and that it would certainly be an economy to use existing Social Service agencies also; that only those soldiers' wives would benefit who were unable to obtain care out of their own resources, assuming that most men who are not receiving officers' pay might find it difficult to finance obstetric care, but each individual case would be considered on its merits; that no one state would receive less, depending upon the need; that funds come from appropriations already made and earmarked as an emergency measure for this purpose, though states may use other funds allotted for maternal and child health if the plan is approved. In cities where there are general hospitals, patients already eligible for care

there would not be included in the plan but many wives moving about with their husbands would not be eligible to care in clinics and hospitals set up for care for local needy. In some cases the patient might be able to make part payment on care received and that principle should be adhered to wherever possible. The plan is set up with the idea in mind of starting things moving in the emergency and Dr. Curtis said, further, that women who for some reason were unable to get into a hospital would have to be delivered under the plan in their own homes. She was unable to answer the question about what would happen to the plan when the war is over. It is being set up to care for an emergency due to war service.

Dr. L. A. Barney of Duluth suggested from the floor that the plan looked like a form of state medicine. The motion to accept the recommendations of the committee was seconded and carried.

The Speaker then called upon Dr. R. W. Morse of Minneapolis, chairman of the Committee on Resolutions. Dr. Morse read the following resolutions, all of which were unanimously accepted.

WHEREAS we are now engaged in a war for the survival of our nation and our freedom and

WHEREAS the needs of our armed forces and of our industrial mobilization to provide the weapons and equipment needed by our brave fighting men supercede all lesser considerations having to do with the pursuits and aims of peace, be it therefore

RESOLVED that this House of Delegates here go on record pledging the members of the Minnesota State Medical Association individually and as an organization to devote themselves exclusively during the coming year and until the war is won to the provision of all needed medical services to the armed forces and to the civilian population at home regardless of what individual hardships it may entail; to do everything that may be in their power to improve the health of workers on the industrial front and to aid in organization of medical protection in civilian defense against attack and sabotage at home to the end that medicine may continue in the high tradition of sacrifice and service established by our forebears in Minnesota.

* * * * *

WHEREAS a bill known as H. R. 7231 has been introduced into the Congress which provides for nine schools of military medicine to be organized and operated on the plan of the military and naval academies at West Point and Annapolis and

WHEREAS it is proposed in this bill that students with pre-medical training shall be accepted by Congressional appointment and shall be given a brief course on military surgery, leaving out much of the basic training necessary to the practice of all the specialties, including military surgery, and all of the training in branches that do not pertain directly to the care of soldiers in the armed forces and

WHEREAS graduates of these schools, one in each Corps Area, would be commissioned as officers in the Army Medical Corps and would be available, according to the sponsor of the bill, to man many government services after the war is over including the Veterans' Administration Facilities, the United States Public Health Service, and any government health insurance project which might be set up in the future, and

WHEREAS the existence, under government sponsorship, of schools whose graduates, though inadequately trained, would be accepted as physicians because of their commissions in the Army Medical Corps would endanger the high standards of medicine developed in America after a period of long and painful endeavor on the part of physicians and educators with the staunch support and cooperation of high officials in the Army, Navy and Marine Corps, Be it therefore

RESOLVED that this House of Delegates go on record in unanimous disapproval of any schools of medicine which do not offer a well-rounded course in accordance with the best standards of medical education in America and that this resolution be sent to members of the House and the Senate from Minnesota.

* * *

WHEREAS the State Board of Health has carried on a consistent sound and forward looking program of public health and preventive medicine in Minnesota during the past year in spite of heavy demands occasioned by the war emergency and

WHEREAS the Board has also generously cooperated with its endorsement and with material aid in the special programs undertaken by the Minnesota State Medical Association including the tuberculosis control program, the campaign for vaccination and immunization, the program and studies of the Committee on Maternal Health and the nutritional program, especially in the preparation, publication and distribution of the four nutrition pamphlets which formed an important part of the campaign for better nutrition in the state,

BE IT RESOLVED that this House express its profound appreciation to the Board and to Dr. A. J. Chesley, secretary and executive officer, and his staff, for their interest and assistance in these special programs and for their fine cooperation with the doctors of the state in all movements looking to the improvement of the health of the people of Minnesota.

WHEREAS the State Board of Health has carried on an outstanding program for control of preventable disease and especially of venereal disease in this state for many years, and

WHEREAS this notable program which has reduced the incidence of syphilis in Minnesota to a rate which is below that of most of the states in the country by utilizing expert medical services on a part-time basis, and

WHEREAS this policy has had the approval and close coöperation of the entire medical profession of the state, Be it Therefore

RESOLVED that the House of Delegates of the Minnesota State Medical Association hereby officially endorses the policy of the Minnesota State Board of Health with respect to control of preventable disease and regards with disapproval the suggestion recently made by the United States Public Health Service that full-time medical service be substituted for it in the program of disease control in Minnesota.

The thanks of this House are extended to the St. Louis County Medical Society and the Committee on Local Arrangements headed, in the absence of Dr. T. G. Clement, by Dr. M. McC. Fischer for their fine entertainment and excellent arrangements which have contributed so much to the interest and enjoyment of this great meeting.

The Appreciation of this House is likewise accorded to Radio Stations KDAL, WEBC and WDSM for their generous contribution of time for broadcasts by our distinguished guests. Such broadcasts constitute a valuable addition to our program of public education about the developments of medical science and the progress of our control over disease.

To the newspapers and news services of the state for their extensive and accurate reporting of the events of this meeting this House expresses its gratitude and its recognition also, of the invaluable assistance given by the press throughout the year to the program of public health education carried on by this association.

The House of Delegates also wishes to note the unflinching courtesy and helpfulness of the Hotel Duluth and its staff and to record especially its thanks to the manager, Mr. Siegrist, for his generous attention to the comfort and convenience of all who have attended the many business committee meetings and entertainments housed in this hotel.

The Speaker then called for nominations for the office of president-elect.

Dr. J. M. Hayes of Minneapolis placed in nomination the name of *Dr. Stephen H. Baxter* of Minneapolis for *President-elect*. There being no other nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary be instructed to cast a unanimous ballot for Doctor Baxter.

DR. BAXTER: When you contemplate something that may perhaps take place in the future, you think you can prepare for it and being forewarned is to be forearmed! But when the event comes, it takes your breath away anyway, and you find yourself speechless. Fortunately this is not the time for a speech, anyway, and so I shall content myself by saying thank you for this great honor.

Dr. J. F. Norman of Crookston was then nominated for *First Vice President* and, there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary cast a unanimous ballot for Dr. Norman.

Dr. F. W. Lynch of Saint Paul was nominated for *Second Vice President* and, there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary cast a unanimous ballot for Dr. Lynch.

Dr. B. B. Souster of Saint Paul was nominated to succeed himself as *Secretary* and, there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Executive Secretary cast a unanimous ballot for Dr. Souster.

Dr. W. A. Condit of Minneapolis was nominated to succeed himself as *Treasurer* and, there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary cast a unanimous ballot for Dr. Condit.

Nominations for the office of Speaker of the House of Delegates being called for, Dr. E. A. Meyerding of Saint Paul, Vice Speaker, took the chair.

Thereupon, Dr. W. W. Will of Bertha was nominated to succeed himself as *Speaker* and, there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary cast a unanimous ballot for Dr. Will who then resumed the chair.

Dr. E. A. Meyerding of Saint Paul was nominated to succeed himself as *Vice-Speaker* and, there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary cast a unanimous ballot for Dr. Meyerding.

Dr. A. E. Sohmer of Mankato was nominated to succeed himself as *Councilor of the Fourth District*, and there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary cast a unanimous ballot for Dr. Sohmer.

Dr. Archie E. Cardle of Minneapolis was nominated as *Councilor of the Sixth District*, and there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary be instructed to cast a unanimous ballot for Dr. Cardle.

Dr. W. L. Burnap of Fergus Falls was nominated to succeed himself as *Councilor of the Eighth District* and, there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary be instructed to cast a unanimous ballot for Dr. Burnap.

Dr. W. A. Coventry of Duluth was nominated to succeed himself as *delegate to the American Medical Association*, and there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary be instructed to cast a unanimous ballot for Dr. Coventry.

Dr. J. C. Hultkrans of Minneapolis was nominated to succeed himself as *alternate* for Dr. Coventry and, there being no further nominations, it was moved, seconded and carried that the Secretary cast a unanimous ballot for Dr. Hultkrans.

Dr. A. W. Adson of Rochester was nominated to succeed himself as *delegate to the American Medical Association*, and, there being no further nominations, it was moved, seconded and carried that the nominations be closed and that the Secretary be instructed to cast a unanimous ballot for Dr. Adson.

Dr. W. L. Burnap of Fergus Falls was nominated to succeed himself as *alternate* to Dr. Adson and there being no further nominations, the Secretary was instructed to cast a unanimous ballot for Dr. Burnap.

An invitation to meet in 1943 in Minneapolis was extended by Dr. J. M. Hayes.

It was moved, seconded and carried that the invitation be accepted and that the 1943 meeting of the association, if it is to be held, take place in Minneapolis.

SPEAKER W. W. WILL: It is my belief that not enough of the information and stimulation that comes out of these state meetings goes back to the county societies. I believe that the men back home should be informed immediately of what this House has done and that the problems brought up here should be more thoroughly discussed in our own societies. I should like to suggest, therefore, that the first meeting of all our societies following the state meeting be devoted exclusively to reports from the delegates and that others besides the delegates who took part in this session be invited to speak.

Dr. Hayes asked what plans had been made for newspaper publicity to counteract unfavorable notices already printed about the slowness of doctors to enlist in the armed services.

Dr. Braasch sketched again the plan of the State Committee on Procurement and Assignment which calls for a letter to all who have been classified as available, articles for MINNESOTA MEDICINE and the *News Letter* and statements to the newspapers showing the considerable contribution already made by Minnesota to the war effort.

It was pointed out by Dr. A. G. Liedloff of Mankato that many physicians who are over-age by present government standards have tried to apply and are willing to go as soon as they can be admitted.

There being no further business to come before the House, it was moved, seconded and carried that the meeting adjourn.

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REPORTS and ANNOUNCEMENTS

AMERICAN COLLEGE OF SURGEONS CANCELS CLINICAL CONGRESS

The annual Clinical Congress of the American College of Surgeons which was scheduled to be held in Cleveland, November 17-20, 1942, was cancelled by the Board of Regents of the College at a meeting held in Chicago, Wednesday morning, October 14. Motivated primarily by patriotism, the Regents were influenced by the present conditions surrounding the general war program which have led to a greater burden on the members of the surgical profession in their local communities as a result of the large proportion of the profession which is serving with the armed forces. The Regents by this action took cognizance of the desire of the profession to do nothing which would interfere with the successful prosecution of the war program such as would be caused by temporary absence of its members from civilian duties during the period of the Congress, embarrassment of the transportation system, and interference with the work of the local profession in Cleveland in preparations and presentations incident to such a meeting.

PEPTIC ULCER FILM

There is now available for free showings before groups of physicians the first complete movie film on peptic ulcer, in color and with sound track.

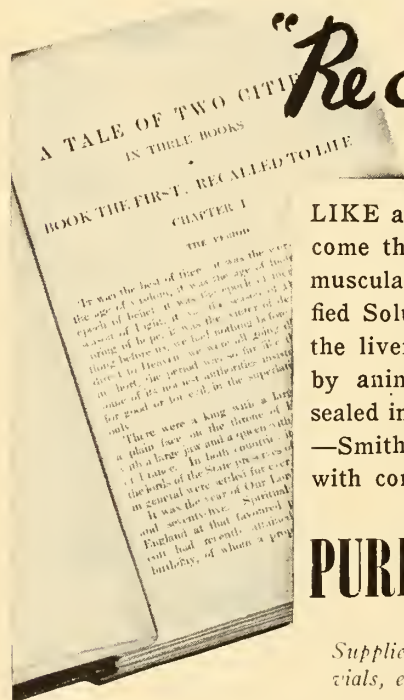
The film is entitled "Peptic Ulcer" and was produced under the direction of the Department of Gastroenterology of the Lahey Clinic of Boston. The American College of Surgeons has awarded its seal of approval to the film.

Running time of the film is forty-five minutes, 1,600 feet of 16 mm. film, and covers a presentation of the following problem of peptic ulcer: Pathogenesis, diagnosis, treatment, pathology, complications, including obstruction, hemorrhage, and perforation, gastric ulcer, surgery and jejunal ulcer.

Arrangements for a showing of the film may be made by writing to the Professional Service Department of John Wyeth and Brother, Inc., Philadelphia, who will provide projection equipment, screen, film, and operator for medical groups, without charge.

MINNESOTA SOCIETY OF INTERNAL MEDICINE

At the meeting of the Minnesota Society of Internal Medicine held in Rochester, October 29, 1942, Dr. Paul G. Bowman of Duluth was elected president; Dr. B. T. Horton of Rochester, vice president, and Dr. Reuben G. Johnson of Minneapolis, secretary-treasurer (re-elected).



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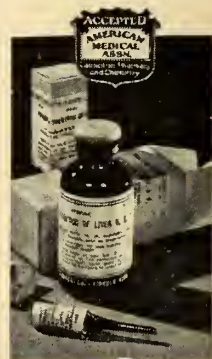
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SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The Southern Minnesota Medical Association elected Dr. Alphonse E. Sohmer of Mankato as president at its annual meeting on September 28 at Rochester. He succeeds Dr. N. W. Barker of Rochester.

Dr. Fred L. Bregel, Saint James, was named first vice president; Dr. Ernest M. Hammes, Saint Paul, second vice president. Dr. Austin C. Davis, Rochester, was reelected secretary-treasurer.

New members accepted into the society are Dr. L. Loomis, Winona, and Drs. G. G. Stilwell, D. Pugh, K. M. Simonton, Walter F. Kvale and W. Dearing, all of Rochester.

Announcement was made that the medal and \$100 prize given annually by the society to the most proficient student in the University of Minnesota medical school graduating class had been awarded this year to Dr. John Schulze.

Drs. A. H. Wells, S. Boyer, Jr., and R. L. Nelson of Duluth were awarded the Society's medal for the best exhibit at the Minnesota State Medical Association's annual meeting. Their exhibit was on "Calcified Nodular Disease of the Aortic Valve."

Richard J. Dorer of the state department of conservation spoke at the dinner on "Our Most Fundamental National Problem: Conservation." Short talks were also given by Dr. H. Z. Giffin, president of the Minnesota State Medical Association, and Dr. Barker.

Civilian and industrial accidents were discussed by Mrs. P. F. Dwan and R. C. Webb, Minneapolis, and Mrs. H. K. Gray, R. K. Ghormley, H. H. Young, W. H. Mickel, T. H. Seldon and E. G. Wakefield, Rochester.

SOUTHWESTERN AND LYON-LINCOLN SOCIETIES HOLD JOINT MEETING

The first of a series of two joint meetings of the Southwestern and the Lyon-Lincoln Medical Society groups was held October 6 at Slayton. Dr. P. W. Harrison of Worthington, president of the Southwestern Society, presided at the sessions.

Among those appearing on the program were Dr. R. K. Ghormley of Rochester, who spoke on "Fractures" and Dr. P. W. Brown, also of Rochester, who presented the subject "Intestinal Diseases."

Because of the central location of Slayton the second joint meeting will be held there also. This choice was made in the interest of conserving gasoline, oil and tires.

Arrangements for the meeting were made by Dr. Roy F. Pierson of Slayton.

WABASHA COUNTY SOCIETY

The Wabasha County Medical Society held its seventy-fourth annual meeting at Lake City, Thursday, October 8, 1942, Dr. R. A. Glabe, president, presiding.

At the business session in the afternoon, the following officers were elected for the coming year:

President—T. G. Wellman, Lake City
Vice President—D. P. Dempsey, Kellogg
Secretary-Treasurer—W. F. Wilson, Lake City
Delegate to the State Association—E. C. Bayley, Lake City (reelected)
Alternate—E. W. Ellis, Elgin
Censor for three years—D. G. Mahle, Plainview (reelected)
Censors holding over—W. J. Cochrane, Lake City and W. H. Replogle, Wabasha

NOVEMBER, 1942

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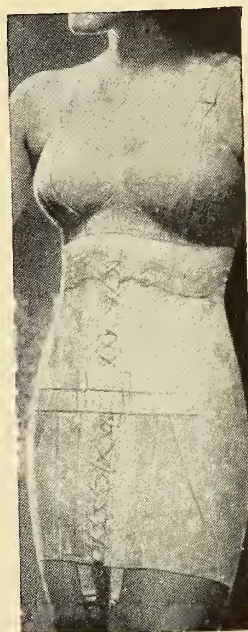
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A pheasant dinner was served to the members, the wives, and invited guests through the courtesy of the Lake City physicians.

At the scientific session in the evening, the following program was presented:

PRESIDENT'S ADDRESS—"Pain as a Symptom of Appendicitis"—R. A. GLABE, M.D., Plainview.

REPORT on the Proceedings of the House of Delegates at the Annual Meeting held at Duluth, June 29 to July 1, 1942.—E. C. BAYLEY, M.D., Lake City.

MOTION PICTURE DEMONSTRATIONS

I. "Proctoscopic Diagnosis"—N. D. SMITH, M.D., May Clinic, Rochester.

II. "Correction of Nasal Deformities"—From the Washington University School of Medicine.

Dr. A. J. Chesley, executive officer of the State Board of Health, gave a short talk on the civilian defense program.

Dr. V. O. Wilson reported on the new rules pertaining to maternity and child welfare care in the families of those absent in military service.

There were twenty-nine in attendance, including members and guests.

W. F. WILSON, *Secretary*.

WASHINGTON COUNTY SOCIETY

The regular monthly meeting of the Washington County Medical Society was held October 13. The secretary reported that examinations of the 4H Club members of the county were made as usual during September by the Stillwater doctors.

Guests at the meeting were Dr. A. J. Chesley, Executive Secretary of the Minnesota State Board of Health and Dr. D. A. Dukelow, also of the State Board, who addressed the meeting on Public Health Nursing, its great value to any community and how to obtain nurses for such work in counties not now so favored. Dr. Chesley made some comments and in addition briefly touched on the health situation now and as it is going to be affected by the war.

E. SYDNEY BOLEYN, M.D., *Secretary*

WEST CENTRAL SOCIETY

The West Central Medical Society held its fortieth anniversary meeting in Morris, October 14, 1942. Judge E. R. Selnes gave a talk on "Medical Jurisprudence" and Dr. C. E. Caine spoke on "The Medical History of Stevens County."

Dr. F. W. Behmler was elected president; Dr. Otto Bergan, vice president; Dr. Herman Linde, secretary-treasurer; Dr. C. I. Oliver, delegate to the state convention, and Dr. Charles Bolsta, alternate.

At this meeting there were four charter members in attendance: Drs. Charles Bolsta, E. E. Caine, J. R. Elsey and C. I. Oliver. Each one of these members made an appropriate speech for the occasion. At the time the West Central Medical Society was organized there were fourteen charter members; at the present time the membership is twenty-eight.

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INDUSTRIAL HEALTH

(Continued from Page 901)

factor. It may provide a variety of movements or it may use a few muscles over and over again. Skilled labor is more fatiguing than unskilled labor. Speeds of work above that which give maximum efficiency and above the natural rhythm of the workers are unfavorable.

Group Diagnosis Helps

One of the simplest ways to learn whether the ill health, accident proneness and loss of efficiency of a worker are due to fatigue incident to occupation is to examine the group in which he works. Although there are individual differences in the reaction to occupational environment, certain common factors provide necessary data for group diagnosis. These include occupational mortality and morbidity rates, accident and efficiency rates, short-time absence and labor turnover rates.

A physician is an unfortunate gentleman who is every day called upon to perform a miracle, namely to reconcile intemperance with health.—VOLTAIRE.

Hennepin County

The year's program for the Hennepin County Auxiliary opened with a tea for new members and officers at the home of Mrs. Frederick Schaaf.

Two new projects are under way in Hennepin County this year. One is the Red Cross dressing group, which was organized last year, but, due to lack of supplies, did not begin to function until this year. Mrs. J. P. Hiebert is chairman with Mrs. J. M. Hall acting as co-chairman.

The second activity is the staffing of a War Savings Stamp booth in the Medical Arts lobby with Mrs. Hugh Tunstead in charge. Both war projects are carried on with the coöperation of the Dental Auxiliary.

Nicollet-Le Sueur County

The auxiliary of the Nicollet-Le Sueur County Medical Society met September 22, 1942, at St. Peter. Dr. A. V. Stoesser of the University of Minnesota department of Pediatrics spoke on "Allergy." Mrs. J. P. Josewski, State President, spoke to the assembly.

◆ OF GENERAL INTEREST ◆

Dr. Walter A. Carley announces the opening of offices at 1124 Lowry Medical Arts Building, Saint Paul, with practice limited to Psychiatry and Neurology.

* * *

Dr. T. F. Crabbe, member of the staff of the Cass Lake Indian Hospital since July, left in October for South America. He will be in government service in Brazil, where he is being sent because of his knowledge of tropical diseases.

* * *

Dr. H. O. McPheeters of Minneapolis presented a paper on "Present-Day Treatment of Varicose Veins" before the Post Graduate Assembly in Chicago, on October 26.

* * *

Dr. Wallace E. Herrell of Rochester addressed the Yankton District Medical Society of Yankton, South Dakota, recently on the subject of "Chemotherapy."

* * *

Dr. John T. Leland, practicing physician in Herman, Minnesota, for the past thirty-seven years, has moved to Mill Valley, California, where he and Mrs. Leland expect to make their future home.

* * *

Dr. L. M. Hammar of Butterfield has opened offices in Mountain Lake, taking over the offices and equip-

ment of Dr. P. J. Pankratz, who is now in service. Dr. Hammar will continue to make his home at Butterfield and to take care of his practice in that community as well as in Mountain Lake.

* * *

Dr. Ruth E. Boynton, director of Students Health Service, University of Minnesota, has been named to the sub-committee on Women Physicians of the Committee on Procurement and Assignment Service for physicians, dentists and veterinarians. Appointment was received from Paul V. McNutt.

* * *

Lieutenant Colonel Sam F. Seely, who has acted as Executive Officer of the National Procurement and Assignment Committee for physicians, dentists, and veterinarians, has been transferred back to active military duty. His military training and industry were of inestimable value to the Committee and the appreciation of the Committee has been expressed in an appropriate resolution.

* * *

Miss Helen H. Norris, who has been Librarian of the Hennepin County Medical Society, Minneapolis, for about thirteen years, resigned, effective September 30, to accept the position of Associate Librarian, Chief of the Division of Custody and Loans in the Army.

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Medical Library, Washington, D. C. She will be greatly missed by her many friends in the medical profession.

* * *

Mr. J. R. Eckman of the Mayo Clinic, who wrote the chapters on "Homeopathic and Eclectic Medicine in Minnesota," published in the section on History of Medicine in Minnesota in MINNESOTA MEDICINE in 1941, has been made a member of Phi Alpha Theta in recognition of conspicuous attainments and scholarship in the field of history. Membership was conferred by Phi Chapter, July 16, 1942.

* * *

Lymanhurst Hospital has now been officially designated as the Elizabeth Kenny Poliomyelitis Institute and Miss Kenny's clinic is established there and will operate under its present financial setup until January 1, when the Minneapolis Welfare Board will set up a Board of Trustees to supervise finances after that time. The city heart clinic now being operated in the same building will continue there, but its budget will be kept separate from that of the Poliomyelitis Institute, according to an announcement by the Welfare Board.

* * *

Wives and babies of soldiers and sailors in enlisted grades who are shown to be in need will be provided with obstetrical and pediatric care through a special fund provided to the State Board of Health by the Children's Bureau. Applications for this assistance will be investigated by the County Welfare Boards in the same manner as other aids to the needy. If approved, physicians giving the service will be paid direct by the State Board of Health. The fund is limited to \$10,000 and existing facilities must be used first. The plan was approved by the Committee on Child Health. An initial survey showed some 411 mothers and 114 children in need of care. Applications for aid must be signed by physician and patient. Forms are available at county welfare boards or the Division of Maternal Health, State Board of Health.

* * *

Dr. Thomas Francis, Jr., chairman of the Department of Epidemiology, School of Public Health, University of Michigan, and Director of the Influenza Commission of the United States Army, gave the Clarence Martin Jackson lecture provided each year by the Phi Beta Pi medical fraternity, at the University of Minnesota, October 21, 1942.

In his lecture entitled "An Interpretation of Current Studies in the Control of Epidemic Influenza," Dr. Francis brought out the facts that influenza is a virus disease, transmitted directly through the respiratory tract and that gauze masks are useless in preventing infection. The infection destroys the ciliated columnar epithelin of the respiratory tract. Natural immunity which exists in a certain percentage of individuals is acquired during an attack and may last a few months. One may be immune to one of the two types, termed A and B, and not to the other. Subcutaneous and intramuscular injection of the living virus fails to pro-

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OBSTETRICS—Informal Clinical Courses every week.

OTOLARYNGOLOGY—Clinical and Special Courses every week.

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duce the disease. The development of immunization
measures is more likely to be effected through intra-
nasal methods than by injection.

* * *

John Reginald McCarthy, son of Dr. W. R. McCarthy
of Saint Paul, was recently awarded the Navy Cross,
the highest award given by the Navy, for his extraor-
dinary heroism and contribution to the success of a
naval engagement.

Lieutenant (j.g.) McCarthy graduated in 1939 from
the Aero-Engineering School of the University of Min-
nesota, was called into service in September, 1939, and
obtained his commission in June, 1940. The same month
he married Elizabeth Rosacker of Minneapolis and the
day following the ceremony flew to the west coast
where he was immediately assigned to sea duty and
dive bombing in particular. On the morning of Decem-
ber 7, 1941, he was flying toward Pearl Harbor in com-
pany of another plane piloted by Lieutenant Clarence E.
Dickinson when he was shot down. In bailing out he
suffered a leg fracture but was picked up and taken to
the hospital at Pearl Harbor where he spent two
months. Later in the Midway battle, after shooting
down two Japanese Zero planes, he ran out of gas,
bailed out again, but in so doing suffered a broken nose
and laceration of the scalp. Fortunately he was picked
up from his rubber life boat by a destroyer and by
coincidence his scalp wounds were sutured by Dr. John
H. Peterson of Duluth. Soon transferred to another
vessel and taken back to Pearl Harbor, he miraculously
escaped the destruction of the destroyer from which
only nine of the personnel were saved. Because he
failed to get back to his carrier he was first reported
missing. He is now in this country.

* * *

A portrait of Dr. W. H. Valentine of Tracy by
Walter Scott Darr, a well-known portrait artist of
New York City, was presented to the Tracy Hospital
by Dr. H. F. McChesney of Brooklyn, New York, a
cousin and classmate of Dr. Valentine at Carleton
College in the nineties. Dr. McChesney is a native of
Minnesota and took his medical training at Johns Hop-
kins, beginning practice in Brooklyn in 1901. Dr. Val-
entine obtained his medical degree at the University
of Minnesota in 1900 and in May of that year began
practice in Tracy. Unable to attend the presentation
ceremonies Dr. McChesney wrote in a letter to the fam-
ily:

"I am presenting this portrait to the Tracy Hospital
in recognition of Dr. Valentine's personal worth as
well as his professional ability and a life-long devo-
tion to the people of his community and the establish-
ment of a hospital to minister to the needs of the com-
munity—not only for the present but for many years
to come. I have a very profound appreciation of the
work and constructive effort Walter has expended for
the good of his clientele and community.

"This hospital is really a monument and memorial
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people of his community have passed on."

At the 101st Annual Meeting of the State Medical Society of Wisconsin held in Milwaukee, September 4, 15 and 16, Minnesota members of the medical profession participated in both the General Session presentations and the Round Table discussions. Those who appeared on the program were:

General Sessions—Arlie R. Barnes, Rochester, "Diagnosis of Pathologic Conditions of the Heart"; S. W. Harrington, Rochester, "Constricting Pericarditis"; Wesley W. Spink, Minneapolis, "The Clinical Applications and Complications of the Sulfonamides"; E. H. Rynearson, Rochester, "Actual Clinical Disturbances of the Endocrine Glands"; E. A. Hines, Jr., Rochester, "The Range of Blood Pressure and Hereditary Factors in Normal and Hypertensive States"; E. T. Bell, Minneapolis, "The Pathology of Hypertension"; Wallace H. Cole, Saint Paul, "The Kenny Treatment of Anterior Poliomyelitis"; H. O. McPheeters, Minneapolis, "The Present-Day Treatment of Varicose Veins"; E. L. Pool, Rochester, "The Treatment of Urinary Tract Infection with the Sulfonamide Group of Drugs."

Round Table Discussions—Arlie R. Barnes, Rochester, "The Cardiac Problems of the General Practitioner"; Wesley W. Spink, Minneapolis, "Medical Management of Gall-bladder Disease"; E. H. Rynearson, Minneapolis, "The Practical Use of Hormones"; H. O. McPheeters, Minneapolis, "Injection of Varicose Veins"; Wallace H. Cole, Saint Paul, "Orthopedics in Children"; E. T. Bell, Minneapolis, "The Etiology of Primary Hypertension"; E. A. Hines, Jr., Rochester, "The Prevention and Treatment of Thrombosis and Embolism."

On the Wednesday morning Motion Picture Program Dr. H. O. McPheeters presented a picture on "Skin Graft."

* * *

The American Gastroenterological Association on January 1, 1943, will publish the first issue of a new journal to be called *Gastroenterology*. The new journal will be owned by the Association, will be the official publication of the Association, and will be published by Williams and Wilkins Company. It will appear monthly, and the subscription price will be \$6.00 per year.

Dr. W. C. Alvarez will be the editor (after June, 1943) and Dr. A. C. Ivy will be the assistant editor. The Editorial Board will consist of Doctors A. H. Aaron (Buffalo), J. A. Barger (Rochester), H. L. Dockus (Philadelphia), W. C. Boeck (Los Angeles), J. B. Crohn (New York), R. Elman (St. Louis), F. Hollander (New York), Sara Jordan (Boston), J. L. Kantor (New York), B. R. Kirklin (Rochester), P. Klemperer (New York), F. H. Lahey (Boston), F. C. Mann (Rochester), H. J. Moersch (Rochester), V. C. Myers (Cleveland), W. L. Palmer (Chicago), J. M. Ruffin (Durham), R. Schindler (Chicago), and D. L. Wilbur (San Francisco).

Gastroenterology invites for publication clinical and investigative contributions which are of interest to the general practitioner as well as the specialist and which deal with the diseases of digestion and nutrition, including their physiological, biochemical, pathological, parasitological, radiological and surgical aspects.

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troenterology, 303 East Chicago Avenue, Chicago, Illinois. Letters regarding subscriptions and business matters should be addressed to Mr. R. S. Gill, Williams and Wilkins Company, Baltimore, Maryland.

* * *

Physicians in Service

Minnesota physicians who have been called to active duty this month include the following:

Dr. Paul C. Benton of Gibbon is at Camp Barkeley, Texas, serving as a First Lieutenant on the Army hospital staff. His practice will be cared for during his absence by Dr. J. E. Schroepel of Winthrop and Dr. A. L. Kusske of New Ulm.

Dr. R. V. Fait of Little Falls is at Bremerton, Washington, at the Puget Sound Naval Hospital. His practice at Little Falls will be in the hands of his associate, Dr. Douglas L. Johnson.

Dr. L. H. Heinz of Hastings has been commissioned First Lieutenant in the Medical Corps and has reported for service at the Aviation Cadet Center in San Antonio, Texas.

Dr. L. J. Monson of Hendricks has reported to the Navy Hospital at San Diego, California, for training. He is commissioned a Senior Lieutenant in the Naval Reserve.

Dr. Harry B. Neel of Albert Lea will serve as Lieutenant at the Bremerton Naval Hospital, Bremerton, Washington.

Dr. A. M. Nielsen of Northfield has reported to Mare Island, San Francisco, California, as an assistant surgeon in the Medical Corps of the U. S. Navy. He has the rank of Lieutenant, Junior Grade.

Dr. M. O. Nesholm of Emmons has been inducted as a First Lieutenant in the medical division of the U. S. Army Air Corps.

Dr. Orien B. Patch of Duluth has been commissioned as a Captain in the Army Air Force and is now on duty at the Lincoln Air Base Hospital, Lincoln, Nebraska.

Dr. Russell O. Spittler of New Richland has been called to serve as Captain in the Medical Corps of the Army and has reported for duty at Fort Sam Houston, Texas.

* * *

Hospital News

Dr. J. A. Cosgriff of Olivia has opened a hospital annex of several rooms to his present office. Rooms on the second floor have been remodeled and equipped for the use of patients.

* * *

Through the efforts of the American Legion Auxiliary and public contribution, a number of towns in Minnesota have received hospital equipment for use by the entire community. At Faribault a resuscitator has been purchased. Olivia has a portable fracture bed which will be used by several other towns in the vicinity including Danube, Renville, Sacred Heart, Bird Island, Hector, Buffalo Lake, Fairfax, Franklin and Morton. Oxygen tents, three in number, have been purchased for use of patients in Anoka, Cambridge and Princeton and the surrounding rural areas. At Mahtomedi a combination patrol car and ambulance will serve the community.



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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

THE ESSENTIALS OF EMERGENCY TREATMENT. Compilation of a series of articles by various authors. Sponsored by Connecticut State Medical Journal. 144 pages. Price \$1.00, paper; \$2.00, cloth. New Haven: Connecticut State Medical Journal, 1942.

CLINICAL ANESTHESIA—A Manual of Clinical Anesthesiology. John S. Lundy, B.A., M.D. Head of Section on Anesthesia, Mayo Clinic; Professor of Anesthesia, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota; Diplomate and Member of the American Board of Anesthesiology, Inc.; Member of the Subcommittee on Anesthesia, National Research Council. 771 pages. Illus. Price, \$9.00, cloth. Philadelphia: W. B. Saunders Co., 1942.

MEDICAL PARASITOLOGY. James T. Culbertson, Asst. Professor of Bacteriology, College of Physicians and Surgeons, Columbia University. 285 pages. Illus. Price, \$4.25, cloth. New York: Columbia University Press, 1942.

SULFANILAMIDE AND RELATED COMPOUNDS IN GENERAL PRACTICE. Second Edition. Wesley W. Spink, M.D., F.A.C.P. Associate Professor of Medicine, University of Minnesota Medical School. 374 pages. Price, \$3.00, cloth. Chicago: Year Book Publishers, 1942.

METHODS OF TREATMENT. Logan Clendening, M.D. Clinical Professor of Medicine, Medical Department of the University of Kansas; Attending Physician, University of Kansas Hospitals, and Edward H. Hashinger, A.B., M.D. Clinical Professor of Medicine, Medical Department of the University of Kansas; Attending Physician, University of Kansas Hospitals; Attending Physician, St. Luke's Hospital, Kansas City, Mo. Seventh Edition. Pp. 997. Cloth. Price \$10.00. St. Louis: The C. V. Mosby Company, 1941.

This seventh edition of Dr. Logan Clendening's Method of Treatment (first published in 1924) features the collaboration of Dr. Edward H. Hashinger. Some new sections and chapters, dealing with newer developments in chemotherapy, in deficiency states, etc., have been added. Other chapters have been entirely rewritten, and drug therapy has been brought up to date in conformity with the Eleventh Edition of the U. S. Pharmacopoeia. Otherwise the treatise follows the general plan of Dr. Clendening's previous editions.

The work is essentially a comprehensive outline of accepted therapy and procedures, with succinct directions for their technical accomplishment. The illustrations of technique are simple and clear, in the same manner in which the descriptive text is direct and brief. The text is replete with numerous practical observations and suggestions gleaned from the wide experience of the authors. The book is not designed as a complete medical text; however, in the opinion of the reviewer, it serves admirably as a ready, concise and practical therapeutic reference.

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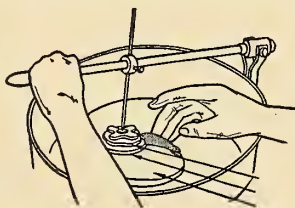
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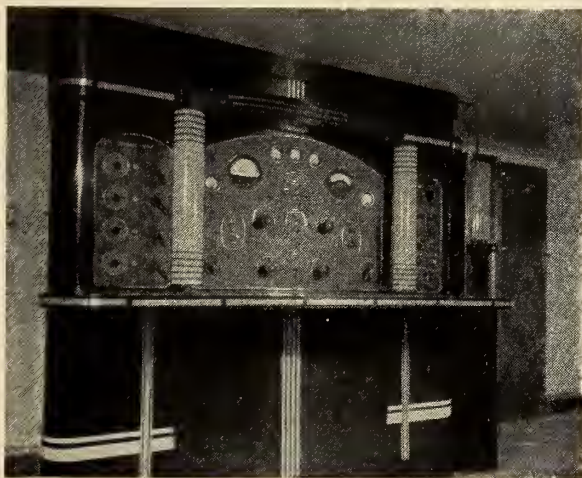
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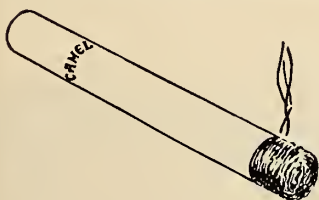
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*J. A. M. A., 93:1110—October 12, 1929

Brückner, H.—*Die Biochemie des Tabaks*, 1936

The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941

“THE CIGARETTE, THE SOLDIER, AND THE PHYSICIAN,” *The Military Surgeon*, July, 1941. Reprint available. Write Camel Cigarettes, Medical Relations Division, 1 Pershing Square, New York City.



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Lessons from Pearl Harbor

Destruction of barracks at Wheeler Field, T. H., December 7, 1941.
Photo by U. S. Army Signal Corps.

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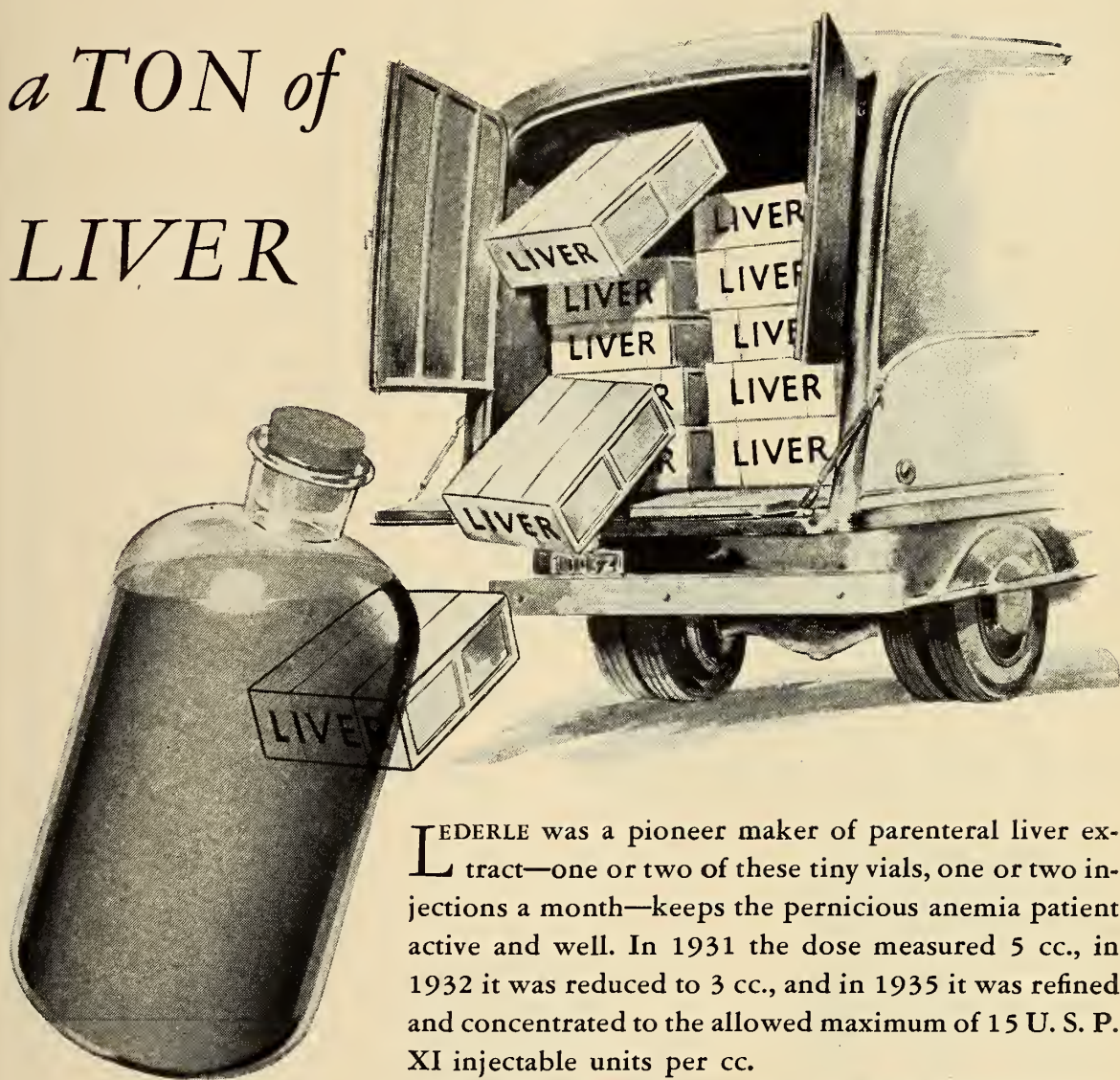
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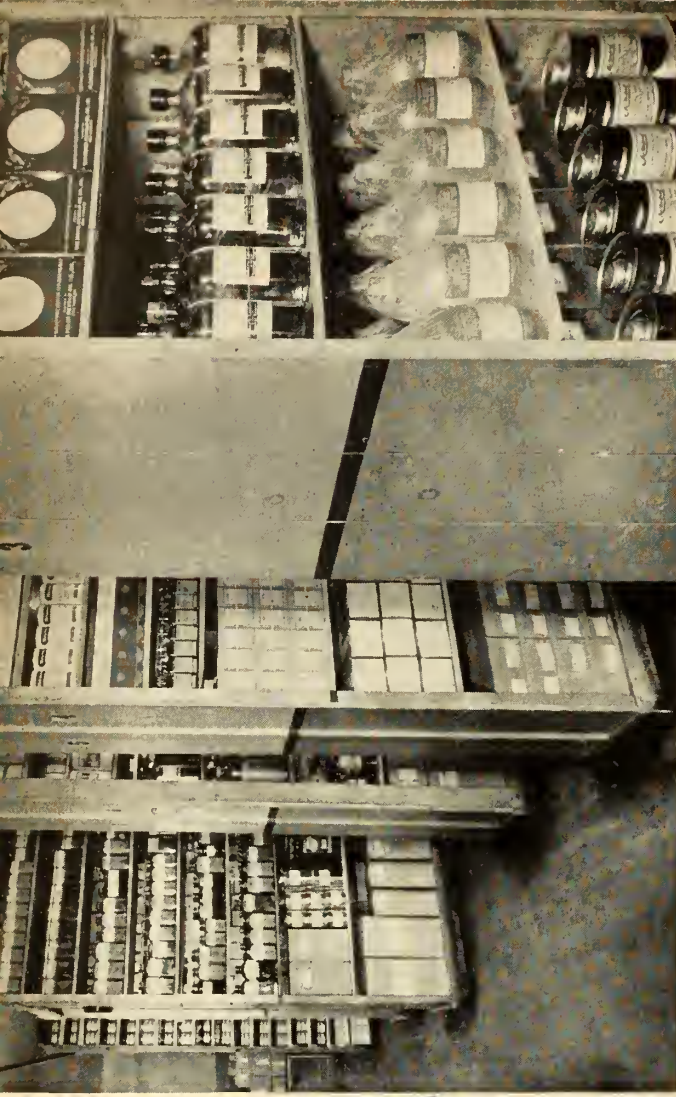


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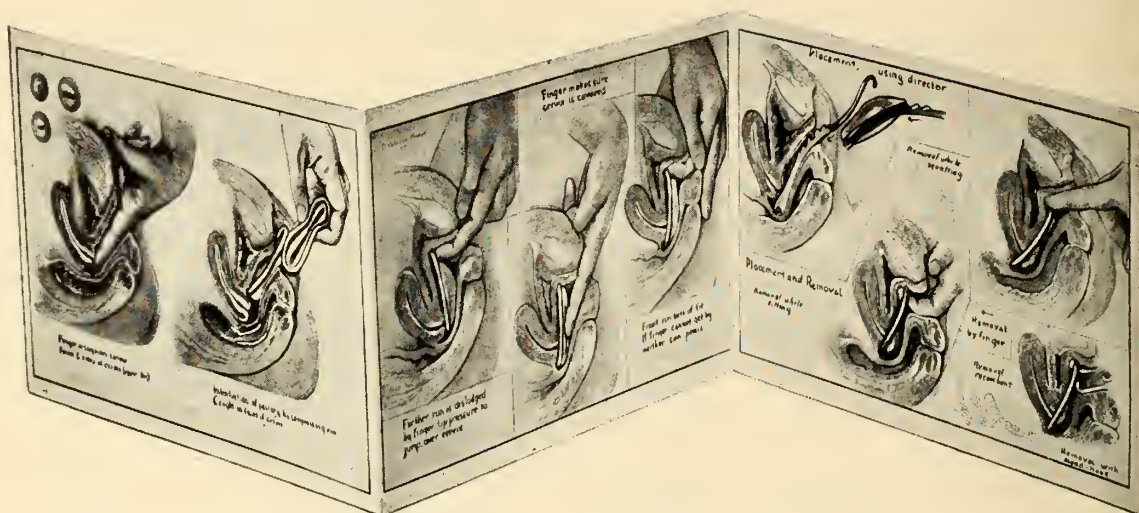
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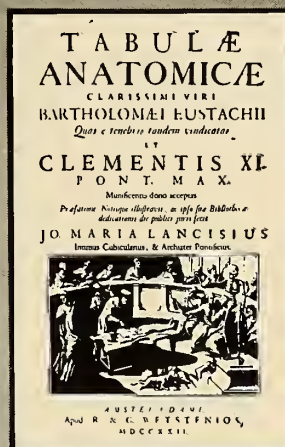
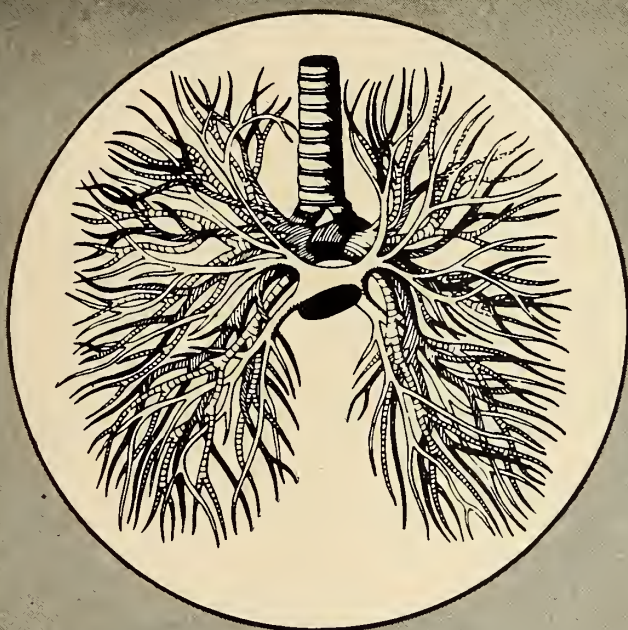
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WARTIME PROBLEMS IN INDUSTRIAL HEALTH

CARL M. PETERSON, M.D.

Secretary, Council on Industrial Health, American Medical Association
Chicago, Illinois

CERTAINLY no one factor about modern warfare has so impressed everyone of us as its dependence on industrial production. There is great and justifiable concern about our resources in materials, machines and manpower. As a matter of fact, our greatest shortage of all is *time*. It is now regarded as axiomatic that no modern military power can afford to lose the productive energy of skilled and capable craftsmen from exposures unfavorable to health which in the main are preventable. In the course of current events, it is becoming plainer daily that the unprecedented mobilization of everything we possess must include intensification of industrial health effort.

The wartime problems of medicine in industry are not so much the acquisition of new information as wider and more direct application of what we already know. Industrial hygienists believe that the medical and engineering profession have accumulated sufficient data and have in their possession equipment and knowledge of technical procedure to control all but the very newest occupational exposures or the very latest modifications of old ones. To be sure, research is a highly essential factor in the prosecution of wartime industrial health activity to such an extent that a considerable share of the total activities of such agencies as the Division of Industrial Hygiene of the National Institute of Health and many committees set up in the National Research Council is directly applicable to the physical welfare of workers. The Subcommittee on Industrial Health and Medicine of the Federal

Security Agency has listed certain problems as of particular significance, as, for example, the intensified occupational dermatoses problems associated with the increased use of cutting oils, compounds and chemicals; the appearance of new abrasives in grinding operations; the reversion to sand in many blasting operations; the enormous expansion in the use of acids in pickling operations and solvents of almost uncounted numbers and uses; the employment of x-rays in line operations; modifications in paint spraying methods and many other types of exposures which can be exceedingly troublesome if proper control measures are not utilized. All of us are familiar with the risks of munitions manufacture and production of war gases. Certainly, one of the most perplexing problems facing industry at the moment is the shifting nature of the work force resulting from the dislocation of young males to the military establishments requiring replacement by women, older men, substandard workers of various types including handicapped individuals or others not eligible for military service, practically all of whom require selective placement in occupations suitable to their physical and temperamental makeups.

But in the main, the principal industrial problems which confront the medical profession over and above those which have to do with improved standards of medical and surgical care, are those involved in the wider application of preventive medicine and surgery in industry and the much more extensive and improved industrial health supervision by physicians in plants of all kinds and sizes. The directions in which we are likely

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to find a solution to these complex situations may possibly be best illustrated as follows:

About a year and a half ago the director of the bureau of industrial hygiene in one of our state health departments asked the personnel manager of a good-sized machine tool company to maintain sickness records as a means of analyzing the causes of employe absenteeism. The plant was most coöperative and after careful study the conclusion was reached that considerable sums in lost wages and in shop production could be saved if more adequate industrial health supervision could be provided for the plant personnel. In the course of events a full-time industrial physician and three full-time industrial nurses were employed to supply this type of service to approximately 2,500 workers.

This procedure aroused interest elsewhere in the same industrial community and other smaller plants were impressed with the contribution which medical service could make in lowering lost time absences arising out of causes related to health. Since these plants felt unable individually to support a full-time physician, the local medical profession was consulted. It was suggested that individual practicing physicians might meet these new medical requirements if a basis agreeable to the employer and to the doctors could be arranged. After full discussion a rotating scheme for personal visitation by physicians to the plants was hit upon, such visits to occur daily, to last at least an hour, and to occur at a definite time of day, usually in the morning. It is interesting to report that frequently these physicians have become interested enough so that they spend more time than is actually required. The manner of rotation and all other medical policies, including compensation, are made by the local profession and recommendations sent directly to the personnel managers. All physicians in the community can participate if they care to, and nearly all of them do.

This experience compresses into one compact case history a number of very important considerations—

1. It exemplifies the growing recognition by industrialists of the value of industrial health service. We have something they can use provided a method is devised which the employer can comfortably support.

2. It supplies an answer, at least in part, to the vexing question of how industrial health can be brought to the small plant.

3. It dramatizes the immensely improved relationships which are rapidly coming to exist everywhere between the three major classification of physicians on whom industrial medical activity largely rests:

- (a) The industrial hygienist, commonly associated with bureaus of industrial hygiene in state health departments, whose functions are mainly investigative or consultative directly to industry and to the medical profession as well as certain duties in relation to enforcement of public health and sanitary codes relating to conditions of work. Prevention of industrial disability, whatever form it takes, occupies a prominent place in his thinking.
- (b) The full-time physician serving in one or several plants who exemplifies specialty practice in this field. He is concerned very materially with prevention in all of its aspects but in addition he must treat compensable disability and occupy himself with the many details of medical department administration.
- (c) The private practitioner in general or special practice who serves on call or part time. Best current estimates indicate that 80 to 85 per cent of medical service to industry is supplied in this fashion. As such it has been mainly remedial in character to such an extent that medium-sized and smaller plants have been left without the considerable advantages of preventive industrial medicine and surgery.

Objectives and Program

The ability of the private practitioner to extend his interests in the industrial field and to face new problems and altered relationships has engaged the complete attention of the Council on Industrial Health for many months, both singly and in combination with the Subcommittee on Industrial Health and Medicine of the Health and Medical Committee, Federal Security Agency. From the very outset the Council became convinced that its educational and other services could only be made effective through wholehearted coöperation with each state medical society. We have been in close touch with developments in the Minnesota State Medical Association through its own Committee on Industrial Hygiene and Occupational Diseases under the chairmanship of Dr. J. L. McLeod of Grand Rapids. I am thoroughly convinced that as the full implications unfold, no committee in your state association structure will be called upon to provide a higher type of leadership or will contribute more to existing medical standards or to the advancement of sound professional relationships. It now becomes desirable and even imperative to extend this same type of coöperative

organization into counties to enable our membership to respond to the medical needs of industry occurring in their own individual communities.

What kind of program do we have in mind? In the first place, we must agree upon objectives. The purpose of medicine in industry is to promote the health and physical well being of industrial employees. These objectives should be accomplished by:

1. Prevention of disease or injury in industry by establishing proper medical supervision over industrial materials, processes, environments and workers.
2. Health conservation of workers through physical supervision and education.
3. Medical and surgical care to restore health and earning capacity as promptly as possible following industrial accident or disease.

Certainly no new principle is enunciated in this list of objectives but it does provide a foundation on which the superstructure of specific functions in industrial medicine can rest and can be so regarded with confidence by all elements in the medical profession.

In the second place, we must define a little more in detail the medical needs of industry in terms of personnel and specific functions which will bring to plants both large and small good medical supervision, satisfactory both to those who receive as well as those who supply these services. All existing plans contain the following essential components:

For every plant:

1. A physician.
2. Nursing service.
3. Industrial hygiene service.
4. Proper correlation of plant health activities with:
 - (a) The practicing profession.
 - (b) The industrial commission.
 - (c) Units of local, county and state health departments.
5. A health program to include:
 - (a) Health conservation by physical supervision and education.
 - (b) Plant inspections to establish control over harmful exposures.
 - (c) First aid and emergency care.
 - (d) Proper reporting of all lost time disability.
6. Adequate compensation of industrial health personnel.

As this ideal goal is reached (and enormous impetus is accumulating under the pressure of war industry and in the expressions of influential people in the government, in industry, and in

labor) we can begin to feel that the quality of industrial health supervision is approaching reasonable uniformity—the quality only varying according to size of the plant. To hasten this end, the Council on Industrial Health has issued a series of pamphlets descriptive of Medical Service in Industry which includes such titles as—

1. *Outline of Procedure for Physicians in Industry.* This is designed to acquaint the practicing physician with duties and relationships in industry—a most helpful and useful statement.

2. *The Industrial Medical Department.* A brief description of how to go about setting up a plant dispensary.

3. *Plant Hygiene Studies.* This emphasizes that no physician will make a real contribution unless he gets out in the plant and makes instructive suggestions about the prevention of harmful exposures, using necessary industrial hygiene consultation and study whenever necessary.

All these publications and others on various aspects of industrial health are available on request from the Council office in Chicago or through your own state committee organization.

Procurement

Now that we have defined specific needs and objectives in industrial health, we come to the most serious problem of all—the procurement of professional and technical personnel sufficient in number and in competence to supply these services about which we have been talking. There are three main aspects:

1. Shall existing industrial-medical services be maintained as essential to the war effort?
2. From what sources may we expect to draw additions and replacements to our present industrial medical organizations?
3. What provision is necessary to arrange for the training of new recruits?

Plans are on foot to clarify the status of the industrial physician. He is always ranked high in the essential civilian medical services along with members of hospital staffs and faculties of medical schools. Instructions are being prepared by the Procurement and Assignment Service with the help of its Advisory Committee on Industrial Health and Medicine, so that the state procurement and assignment committees will be able to refer to explicit instructions about maintenance of industrial physicians at existing assignments. Evidently also these same state procurement and

assignment committees will function more and more as placement centers for new untrained medical personnel needed in war industry.

The most difficult problem to solve has been the matter of providing the proper training. A few professional schools have developed advanced training courses and there has been some effort to provide continuation study under existing postgraduate programs in state medical societies. The greatest success has been encountered where there has been concomitant training of physicians and industrialists together in the benefits to be derived from industrial health activity. The "Outline of Procedure for Physicians in Industry" will act as an immediately available guide to all ordinary duties and relationships. For more extended training both before and after graduation, the Council on Industrial Health and the Committee on Education of the American Association of Industrial Physicians and Surgeons have prepared a report entitled, "The Teaching of Industrial Health," which we will be glad to supply either directly or through application to your own state society committee.

Conclusion

In the last analysis, a considerable share of the problems in industrial health boil down to these three:

1. Is this environment a safe and healthful place in which to work?
2. Is this worker properly equipped physically and temperamentally for the work he is doing or

for which he is applying, and if not how can he be fitted to perform it?

3. Is this physician properly equipped to recognize and control forms of disability most likely to occur in plants or in occupational groups under his supervision?

In each of these fields attempts are being made to apply the techniques of standardization and certification. Plants are already being inspected for hazards to health and safety. Industrial medical departments are being approved as fulfilling certain minimum standards. In keeping with the times, it is proposed that physicians limiting practice to industrial medical affairs demonstrate their qualifications as specialists before a certifying board.

These prospects, whatever else may be said about them, indicate that industrial health is a province in medicine of great vitality and with most interesting potentialities. Many of its important aspects which only physicians are equipped to perform are virtually unexplored. Here, perhaps, is one of the few remaining opportunities for the extension of needed medical service on the basis of personal initiative by individual physicians. Again, developments which have already occurred may be the spearhead leading to nationalization of certain forms of medical service. In any event, the highest type of medical leadership and diplomacy is needed to see that the essential interests of the worker, the employer and the physician are properly understood and intelligently safeguarded.

MINNESOTA'S INDUSTRIAL HEALTH PROGRAM

L. W. FOKER, M.D.

Director of the Division of Industrial Health
Minnesota Department of Health
Minneapolis, Minnesota

THIS is the first meeting of the Association since the establishment of a Division of Industrial Health in the State Health Department. We hear a great deal at this time of the importance of protecting the health of the industrial worker, "the man behind the man behind the gun," and for this reason this is probably an opportune time to introduce this new activity.

We should not be led to feel, however, that the importance of the activity hinges upon the war effort, or that this State, because of the war, is enjoying a position of industrial importance which will soon collapse following the cessation of hostilities. On the contrary, figures from the 1930 Census show that upon the basis of the number of persons employed in the mineral, manufacturing, and mechanical industries, Minnesota with 210,299 employes ranks twenty-

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second among the States. This position is not as low relatively as it may appear, since Minnesota has only 32,000 fewer employed in the above mentioned groups than the state occupying fifteenth place. In other words, Minnesota ranks practically among the upper third of states according to the number of persons employed in mineral, manufacturing, and mechanical industries. Connecticut, a state commonly regarded as of much greater industrial importance, employs only 50 per cent more persons in these industries. The war then has helped focus upon this problem the attention which it deserves.

I do not believe there are many of us who appreciate the extent of the problem of protecting the health of the industrial worker. I have here some astounding figures which were presented several weeks ago by Paul V. McNutt in a talk before the National Conference of Governmental Industrial Hygienists in Washington, D. C. He has shown that on an average, four hundred million working days are lost each year due to disease and injury in industry, by far the greatest part of which is due to disease. The implication for the war effort of these astronomical figures is impressive: if all the disabling illness and accidents struck tomorrow in our war industries, we would have to cease production for sixty-six days.

We should emphasize here that we should not consider the problem as the protection of industrial workers against only the specific occupational diseases attendant with certain industries, but against illness due to all causes. There is evidence that the morbidity and mortality rates of certain industrial groups are higher than in the general adult population or than in the industrial population as a whole. Studies conducted in a number of industries have shown a high incidence of certain diseases commonly considered as nonoccupational, such as tuberculosis, pneumonia, and the degenerative diseases. While it is true that much of the disease among wage earners is due to harmful dusts, vapors, fumes, chemicals, excessive temperatures, and faulty plant sanitation, yet we cannot disregard the effects of improper living conditions, hurry, strain, malnutrition, and communicable diseases.

Governmental and other agencies have recognized for some time the importance of the effects of industrial environment on the health of the worker and on the community as a whole. Soon

after World War I, the U. S. Public Health Service formed its Division of Industrial Hygiene; since that time thirty-six states, four cities, and two counties have formed industrial hygiene units.

Industrial management has been stimulated to join the movement for the protection of industrial health by the growing recognition of its responsibility to protect the health of its workers, through the passage of workmen's compensation acts, and by the realization that among industrial workers, illness, much of which is preventable, causes at least fifteen times as much absenteeism as do industrial injuries. It has been estimated that the total cost of sickness in industry for the United States is five billion dollars annually.

The National Manufacturers Association has shown in a survey of 2,064 plants that by the provision of proper plant medical services and the application of preventive medicine, industrial absenteeism can be reduced 29.7 per cent. Other very significant savings which should be mentioned here are a reduction in the specific occupational diseases of 62.8 per cent; compensation insurance premiums are reduced 28.8 per cent, and labor turnover 27.3 per cent.

The medical profession has not been unaware of the importance of the protection of the health of the wage earner. In 1937, the Council on Industrial Health of the American Medical Association was established and many committees on industrial health have been formed in state and county medical associations. Physicians have begun to appreciate the opportunities in ethically managed industrial health programs and the mutual benefit to be derived from proper relationships between industrial and private practitioners. The private practitioner also is beginning to appreciate his opportunities among the 85 per cent of the industrial workers who are without the benefit of plant medical programs.

In Minnesota, in 1940, the Committee on Industrial Health and Occupational Diseases was formed in the State Medical Association. In 1939 the Minnesota State Legislature passed an act requiring the reporting of occupational diseases and authorizing the State Department of Health to investigate and make recommendations for the control of industrial health hazards. Early in 1940 an Industrial Hygiene Unit was formed within the State Department of Health to carry out this function. In July, 1941, the status of the

Industrial Hygiene Unit was changed to that of a full Division of Industrial Health.

The general function of the Division is to offer a medical and engineering advisory service to assist industry in the many technical aspects of the control of industrial health hazards. The broad outline of its program is as follows:

1. To receive and investigate reports of occupational disease.

2. To promote more adequate medical services within industry, such as the employment of full-time or part-time physicians and nurses, the provision of properly equipped first aid rooms, and the maintenance of sickness records.

3. To encourage the use of ethical pre-employment and periodic physical examinations.

4. To confer with industrial physicians in regard to special problems or general industrial health programs. Special blood and urine analyses for evidence of industrial intoxication will be made when warranted.

5. To provide engineering personnel who are specially trained and equipped to make studies of plant environment (*e.g.*, air analysis for toxic

vapors, gases, and dust, in an effort to determine whether the working atmosphere is safe or otherwise) and to make recommendations for the control of health hazards found. These studies will be made at the request of physicians, plant managements, the State Department of Labor and Industry, and others concerned with the health and welfare of the industrial worker.

6. To promote within industrial groups adult hygiene programs, such as the control of tuberculosis, syphilis, and other communicable or preventable diseases.

7. To prepare and disseminate information on various toxic materials and processes, and methods for their control.

Much of the success of this program depends upon the coöperation of the members of this Association. One means by which the members of the Association can coöperate most effectively is the reporting of occupational diseases, using the reporting blanks which have been recently furnished for this purpose. Obviously, these reports are important in pointing out conditions in industry which are hazardous to health, conditions in the control of which we may be of assistance.

PREVENTION AND TREATMENT OF HEAT COLLAPSE AMONG INDUSTRIAL WORKERS

F. J. ELIAS, M.D.
Duluth, Minnesota

DISABILITY as a result of increased environmental temperature is of special interest to us at the present time. Our war effort demands every consideration toward the reduction in loss of time through accidents and preventable disease; conservation of health and increased efficiency are paramount. This may not be a new hazard to our armed forces but it is certain many of our troops are now being seasoned in far-off tropics. Review of the literature on heat injuries reveals many early contributions emanating from the territories to which our troops are moving, many over the period of only a few days.

It is important to recognize that excessive heat exposure is responsible for three typical maladies: one producing an expression as vivid as any emergency one may encounter in industrial practice known as heat cramps; another, a highly

fatal condition, heat stroke, differing distinctly from the preceding condition. The third, heat exhaustion, manifests also an individual picture with a separate physiologic basis.

Briefly, these disabilities are due to a disturbance in the mechanism of heat production and heat loss, or control of body temperature. Heat production has its source, mainly, in the skeletal muscles of the body and is derived from the oxidation in the tissues. Heat loss is accounted for: 75 per cent through conduction and radiation and 25 per cent through evaporation from the lungs and skin. When environmental temperature approximates or exceeds the temperature of the body, conduction and radiation lose their rôle, the load being transferred to evaporation from the skin.

The total amount of salt in the human body is estimated to be about 150 grams; the daily in-

¹Presented before the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, July, 1942.

take is from 8 to 12 grams. As much as twenty-five per cent of the latter may be lost in an hour under certain conditions. The important property of salt, especially the sodium ion, is in the osmotic regulation of the body fluids and juices. Of interest to us is the behavior of body water. The kidneys maintain an equilibrium of salt in the body even with the ingestion of large quantities of water. The sweat glands fail to suppress the excretion of salt in perspiration and considerable depletion occurs with excessive activity. With the abnormal loss of salt and coincident ingestion of large quantities of water, normal tissue fluids are replaced by fluid of different concentration. This is constantly associated with heat cramps, to a less degree in heat exhaustion and is absent in heat stroke.

Heat cramps occur in the early period of a hot spell, do not produce unconsciousness and follow extreme activity with profuse sweating and increased ingestion of fluids. The body temperature is normal. The most prominent symptom is a spasm of groups of muscles, subsiding for a period to recur with varying degree and frequency. The muscles of the extremities are the most frequently involved. Subjects indicate the pain as indescribably intense. In the severe case, the relief observed in replacement of salt through intravenous injection is striking. The milder cases require only oral administration. Patients are usually relieved after twelve to twenty-four hours.

Heat exhaustion presents a picture of shock and weakness. The individual is pale; the skin cold. The pulse is usually weak and rapid; the temperature is below normal. It is more frequent in the older age group and those handicapped by systemic disease.

Patients with heat stroke manifest a high temperature, 106 and above, unconsciousness and a dry skin. There is absence of sweating and its cessation occurs before the onset of an attack.

Its occurrence is more frequent after the second and third day of a hot spell. No loss of chlorides is noted, its basis being a disturbance of the heat regulatory center. This condition is the most serious of the three and demands prompt measures toward the reduction of body temperature.

In general, the measures conducive to a good industrial health program include the prevention of heat collapse in the industrial worker. The periodic physical examination, including that after sick absenteeism and prompt report of illness on the job, needs greater attention during this season. Dietary indiscretion and alcoholism are frequently observed as factors in the incidence of heat exhaustion and heat stroke. Careful attention should be given by the employe to the meal carried to work in the lunch kit. Too frequently it contains food remnants inadequately stored or refrigerated. Education in the selection and preparation of this important meal has broad possibilities in the hygienic program. Adequate rest, often obtained with difficulty, during protracted periods of hot weather, should receive consideration.

Sufficient experience in the use of salt in the prophylaxis against heat cramps in recent years has proven its value. The use of the tablet is the most practical method of administration under most circumstances. The coated tablet appears to meet with more favor. In the treatment of heat exhaustion, facilities should be available where adequate examination and observation may be carried out.

Of major importance in the management and control of this serious disability is the necessity for a sound industrial health program under the supervision of an efficient and well-organized medical service.

Appreciation is extended to the Industrial Relations Department of the Carnegie-Illinois Steel Company for the presentation of their interesting sound film on "Beat the Heat."

POLIO INCUBATION PERIOD AVERAGES TWELVE TO THIRTEEN DAYS

Infantile paralysis takes from twelve to thirteen days, on the average, to develop after a child has been exposed to the disease, Dr. Albert E. Casey, of Birmingham, Ala., reports (*Jour. AMA*, Nov. 14).

This period, known scientifically as the incubation period, varied from five to thirty-five days in the thirty-seven cases Dr. Casey studied. The twelve-thirteen day incubation period is compatible, he reports, with that in eleven cases reported in medical literature and with the incubation period in monkeys or chimpanzees inoculated with freshly isolated human strains of the infantile paralysis virus.—*Science News Letter*, November 21, 1942.

DIET AND MUSCULAR FATIGUE

AUSTIN F. HENSCHEL
Minneapolis, Minnesota

IT is common knowledge that in order to do work one must eat. In total starvation muscular efficiency and work capacity fall continuously. Food is the source of the energy for work. We must admit, however, that our detailed knowledge of the function of many foods is scanty. Most everyone will agree that certain classes of foodstuffs—as glucose, amino acids, fatty acids, minerals, vitamins, and water—are absolutely necessary for normal metabolism. But what effect does maximal or minimal daily intake of the various dietary constituents have on the human ability to do muscular work? Can one do more work or prevent the onset of muscular fatigue by following any special dietary regime? Scientists have long known that carbohydrates—specifically glucose—play a major role in muscle metabolism. It was recognized that tiredness, fatigue, and, in extreme cases, even collapse occurred when the blood sugar was depleted. Men kept on a low carbohydrate diet soon exhibited decreased muscular efficiency and ability to do hard physical work.²⁴ In experiments on the efficiency of industrial workers^{11,12,13,14} it was found that when the blood sugar was low, the muscular efficiency—and consequently the output—of the workers decreased. When the blood sugar and muscular efficiency of the workers had fallen to fasting levels, as they were found to do within three hours after the last meal, the ingestion of 30 grams of glucose or 225 c.c. of fruit juice raised the blood sugar 75 per cent and the muscular efficiency 25 per cent. From this evidence it appears justifiable to conclude that the total amount of work and the efficiency with which one can do it are decreased when the blood sugar falls below some optimal value. There is, however, no evidence that in normal humans fatigue can be delayed or decreased by maintaining a superoptimal blood sugar level. One might, also, criticize the results of the experiments on the industrial workers on the basis that it has been shown³⁰ that almost anything one does to change the worker's routine will increase output.

The role of the fats and proteins in work and

fatigue is not firmly established. When men were kept on a high fat diet they were less efficient and fatigued faster. However, this finding may have been related to the relatively lower carbohydrate intake. Protein intakes up to 500 grams per day have been investigated. The subjects were more efficient on the high protein diet than on the high fat diet, but were not as efficient as when the blood sugar was kept at high levels by giving carbohydrates.¹² Numerous papers have appeared on the value of a high glycine diet. Some of the investigators found that work output could be increased up to 200-300 per cent by a daily intake of 10 to 50 grams of glycine.^{1,4,32} In other laboratories the beneficial effects of glycine could not be confirmed.^{15,17,21} Consequently, it remains for the future to show the true importance of the amino acids in muscle metabolism.

Amphetamine sulfate (benzedrine) has been used rather widely to postpone the onset of fatigue and to lessen its symptoms. Research has in part, justified its judicious use. It has been shown that 10 to 20 mg. of benzedrine sulfate given to patients complaining of chronic fatigue markedly improved 80 per cent of them. In a group of 80 normal people 62 per cent of those receiving the drug recorded subjective feelings of decreased fatigue and increased efficiency while only 16 per cent of those receiving placebo recorded any subjective help²⁹. Benzedrine given 3½ hours before the end of the working day increased the flicker fusion frequency and decreased the sense of fatigue in a group of office and laboratory workers³⁴. Doctor Ivy¹⁸ has concluded that the diminution of the sense of fatigue by benzedrine was entirely a subjective phenomena. This might cast some doubt on the ability of benzedrine to influence true muscular fatigue.

The use of coffee, tea, and "cokes" to combat fatigue is a common practice. One might be tempted to think that the popular mid-morning coffee and afternoon tea habit might reflect something a bit more fundamental than accidental habit. Caffeine⁵ has been shown to prolong the onset of fatigue and increase the total work out-

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put of an isolated frog muscle. In the normal noncoffee drinking human it took from 0.5 to 1.0 gram of caffeine intravenously to produce any subjective or objective effect on fatigue⁹. With such high doses the recovery rate from fatiguing work and the total amount of work that could be done before complete fatigue were increased. If it takes about 1 gram of caffeine intravenously to be effective, it hardly seems logical that the average coffee drinker would get enough caffeine to have any alleviating effect on fatigue.

Of particular interest is the part played by the vitamins—especially ascorbic acid and thiamine—on muscle metabolism. There is no doubt that the vitamins are dietary essentials for maintaining normal muscular activity. The recognition that an increased intake of vitamins will increase the physical vigor of frank vitamin deficiency cases has given rise to the belief that a superabundance of these vitamins may produce supermen or at least help one in meeting physical strain. Research on isolated muscles has led a few investigators to believe that ascorbic acid and thiamine will increase the ability of a normal muscle to do work.^{2, 3, 16, 27} Others, however, were unable to confirm the results.^{20, 33}

Experimentally induced thiamine deficiency in human subjects has produced interesting results. When subjects were kept on a diet adequate in all respects except thiamine (0.5 mg. or less per day) they developed clinical symptoms of thiamine deficiency including muscle soreness, weakness, and a decreased ability to do work^{8, 19, 26, 35, 36, 37}. As the daily thiamine intake was progressively increased a level was attained where the clinical symptoms disappeared and the work capacity was increased. When still higher doses of thiamine were given to these subjects on intakes just sufficient to prevent deficiency symptoms, the amount of work the subjects could do seemed to be further increased. Clinical symptoms disappeared on thiamine intakes of 0.5 mg. per 1,000 calories while maximal benefits were obtained with not more than 1 mg. of thiamine per 1,000 calories. Thiamine intakes of that order fall within the 1.2 to 2.3 mg. per day, suggested by the Committee on Food and Nutrition of the National Research Council.³¹ Food purchase surveys have shown that from 30 to 50 per cent of the American diets would fall into the sub-clinical deficiency class receiving less than 1 mg. thiamine per 1,000 calories.^{6, 7} It would be

expected then that a great many people should be helped physically by an extra thiamine intake. Addition of up to 15 mgs. per day of thiamine to uncontrolled human diets has been reported to improve such muscular performances as holding the breath, arm-holding, cycling, and football playing.^{10, 25, 28} However, the results can be justly questioned because the experiments were poorly controlled.

Doctor Ancel Keys and I^{22, 23} have carefully investigated the possibility of increasing work ability by vitamin supercharging. The subjects were healthy, normal enlisted men of the United States Army who were eating the regular garrison ration. Analysis of the ration showed it to be sufficient in all respects. The thiamine content was not less than 1.7 mgs. per day's ration. Increasing the daily vitamin intake by 17 mgs. of thiamine, 100 mgs. of nicotinic acid amide, 20 mgs. of calcium pantothenate, 10 mgs. of riboflavin, 100 mgs. of pyridoxine, and 200 mgs. of ascorbic acid over periods ranging from 5 to 6 weeks had no effect on the subjects' biochemical and physiological response to a set task of severe work. Each subject was on a control period which was identical to his experimental period except that he was given placebos identical in size, shape, and color to the vitamin tablets. In this way each subject served as his own control so that individual variations were eliminated. The variables measured to assess the effects of the vitamins were pulse rates, heart size, stroke output of the heart, oxygen consumption, respiratory quotient, urinary nitrogen and ketone body excretion, blood glucose, blood lactate, hemoglobin, blood acetone, and two-hour glucose tolerance curves. Except for a slight training effect none of the variables measured were significantly different during the control and the experimental periods. Only one subject expressed any subjective improvement and that happened when he was on the placebos.

The garrison ration contained the suggested optimal thiamine intake, consequently the experiments did not cover the subclinical thiamine deficiency levels which might, according to some other investigators, be benefited by increased thiamine intakes. We have now finished a series of experiments on normal active college men who have been kept on the suboptimal thiamine levels for periods ranging from five to ten weeks. As with the soldiers each subject has served as his

own control. The subjects ate only the basal diet. During half of each experimental period they received extra thiamine and during the other half they got placebos. Thiamine determinations were run on the diet every day and twenty-four-hour urinary thiamine excretions were done each week. One-half day each week each subject was subjected to a standard routine of severe muscular work. Complete blood chemistries were run before and after each work period. The results indicate that the ability to do the set task of work was the same when getting extra thiamine as when on the basal diet alone. No symptoms of deficiency were noted. These experiments indicate that thiamine intakes of more than 0.3 mg. per 1,000 calories of food consumed have no effect on the ability of a normal person to do severe muscular work.

Summary

Although special benefits from special foods have often been suggested for normal humans, there is little evidence that the special benefits are actually obtained.

Extra supplies of vitamins have no influence on physical ability, resistance to fatigue or the rate of recovery from severe muscular work.

The usual dietary constituents are essential for normal muscular activity and physical well-being. However, the optimal intakes of the various foods are not fully established. By following the recommendations of the Committee on Food and Nutrition of the National Research Council, basic food requirements for all normal needs would be amply fulfilled. Even though the recommendations may in some cases exceed the optimal requirements, it is comforting to know that the results of a superoptimal intake are nothing more serious than a waste of money.

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Normally humans absorb 70 per cent of the *carotene* in raw carrots or cooked spinach, furnishing them with vitamin A, but this drops to 50 per cent if there is no fat in the diet.

FIRST AID TO THE INJURED WORKMAN

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IT IS gratifying to one who has been associated with industry for some time, to see the increase in interest shown towards the first-aid care of the injured workman. I think the impetus for this has been due in part to the increasing number of lay people who have taken first-aid courses. These courses not only have had an effect in preventing accidents but also have given the layman an appreciation for the care of the injured, which I believe can be obtained in no other way. I think it fitting, therefore, that we as medical people take advantage of this situation so that the care of injured workmen will be improved still further. In the past, this problem has been the concern principally of larger industries. However, the same care can be carried out in small industries where we have some of the workmen trained as first-aiders. Industry has been in a unique position in that it has had an opportunity of controlling the injured workman from the time of the inception of the injury until he is completely healed. This is a situation which does not present itself to men who see injuries in private practice.

First aid always begins by preventing accidents. One of the best ways to prevent accidents is by having a careful physical examination of all employes before they start to work. This examination should be repeated if the employe has had a serious injury or accident. In organizing any first-aid procedure for injured workmen, men should be picked who not only have had first-aid instruction but who have practical ability for taking care of an injured man. In a large plant where an official first-aid station is maintained, probably manned by a graduate nurse or a doctor, this is not necessary. Instructions for first-aiders should be extremely simple, clear-cut and of such a nature that they can be understood by any workman. These instructions can be improved by having illustrations or pictures showing the use of certain equipment, such as bandages, splints and so forth. It may be that the specific instructions of a surgeon for a spe-

cialized type of industry are necessary but in general all instructions should be simple. First-aid kits are essential.

In the electric industry, we have kits to fit each truck where there are small crews. In these kits are bandages and other equipment, most of which have illustrations in the form of pictures showing how the equipment is to be used. I believe a first-aid kit should contain sterile gauze compresses of varying sizes, bandages, splints, and possibly a tourniquet. I think this makes an excellent first-aid kit. Employers and employes alike should realize that the day when the injured workman dashes to the medical kit and pours some iodine or other antiseptic into a wound and then forgets it, has passed.

We should also appreciate that we are not making doctors out of first-aiders. All wounds regardless of size and the embarrassment of the employe sustaining the wound should be reported and taken care of. It is a well-known fact that serious complications more frequently follow small wounds than large wounds. In many industries, men are penalized in some way for not reporting any and every wound. In treating these wounds we should impress on the workman who has received one that nothing should be done which will increase injury in the first-aid care.

This brings up the matter of antiseptics. Koch's influence in the treatment of wounds has changed our methods of procedure quite radically. If doctors as well as laymen would realize that the pouring of any antiseptic into a wound only increases the injury already done, first aid would be improved. Any antiseptic can do just as much injury to the tissue cells as it will to the bacteria. If the tissue cells are destroyed or injured, their natural defense mechanism has been impaired and an excellent medium for the growth of bacteria has been set up. Furthermore, Fredrich has definitely shown that bacteria do not penetrate the tissues for the first six hours. With these facts in mind I do not believe wounds should be treated with any antiseptic by a first-aid-er. I feel that the proper thing to do for

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such wounds is to cover them with a sterile compress holding it in place by some form of bandage and get the patient to the doctor or hospital as soon as possible. I do not believe the first-aider should go so far as to clean dirt, grease or debris off a wound before applying sterile gauze. This just increases the trauma and therefore increases the possibility of further damage to the wound. In general, the dressing used for the wound should be large enough to more than cover it, the tendency of most workmen being to apply too small a dressing to a wound. Further than this we need not worry about anything except the control of hemorrhage as a first-aid procedure.

This brings up the fact that most surgeons realize that the tourniquet does more damage than good in the hands of the average first-aider. I certainly heartily agree with this fact. I think it should be impressed on first-aiders that hemorrhage in general from wounds can be controlled by pressure of the bandage over the sterile gauze compress on the wound in most cases. Rarely will a tourniquet have to be used. If a tourniquet is used, I think it should be used with the same materials and at the points designated in the *First-aid Manual* put out by the Red Cross, for the sake of uniformity. Most of the damage done in the late war by tourniquets was because of the long time which they were applied. This is obviated in industry because of the proximity of the patient to the doctor or a hospital in this state.

I do not feel as a first-aid procedure that foreign bodies in the eye should be removed at the site of an accident by an employee. In this situation, I feel the eye should be properly covered and the patient taken to a physician.

In the first-aid treatment of burns, we must remember that they are wounds just the same as any other wound. It is my policy in extensive burns to minimize the first-aid treatment as follows: the patient should be covered by a sheet or blanket, kept warm, recumbent and transported to a hospital as soon as possible. In other words, I do not believe the shock should be increased in any way by a layman attempting to apply some ointment or liquid to a burn. In the majority of cases, they would not have enough material to cover the burn and in the next place the doctor as a rule has his own definite ideas about the care of specific types of burns. If the burn is

small I believe it should be properly covered by a sterile dressing like any other wound. In no case do I feel any ointment or other material should be applied to the burn by a first-aider. This might be changed in cases where a dressing room manned by a nurse is established at the industry. It must be remembered that a covering over a burn will minimize pain to a great extent. In some severe burns, the doctor may have to be called to administer an opiate before the patient is moved.

Artificial respiration is an extremely important first-aid procedure in industry where asphyxiation is possible. I believe the prone pressure method described in the Red Cross *First-aid Manual* is the best procedure because of its simplicity and the fact that no equipment is required. All employees should practice this frequently, particularly in the electric and gas industry. More recently in the electric industry, we are teaching what is known as pole-top resuscitation. This is a procedure which can be carried out at the top of a pole where many of our electric accidents occur. The results have been extremely gratifying because there is little time lost between cessation of breathing and artificial respiration. The prone pressure method in the same accident could not be started until the patient reached the ground, which is a matter of at least three minutes.

Considering fractures, from a first-aid standpoint, I wish to call your attention to the work done by the Fracture Committee of the Minnesota Medical Association, which was reported in the November issue of the MINNESOTA MEDICINE for 1941. I do not believe that there is any deviation from the opinion that fractures should be splinted where they lie and before they are moved. Where a First-aid Station is manned by a doctor or a nurse this is simplified. The problem is how best to teach this to first-aiders, in the case of smaller industries. If we combine what is given in the *First-Aid Manual* put out by the Red Cross, plus the changes made by the Committee from the Army, Navy and American College of Surgeons, I think we can arrive at a few simple rules. All individuals with skull fracture and head injuries should, of course, be transported lying flat on their back. The same applies to the cervical spine; whereas, those with fractures of the thoracic and lumbar

spines should be transported on their belly. In the case of neck fractures proper support should be given to the head. This is a very simple and definite rule and I do not believe it should be changed. First-aiders should furthermore be impressed with the fact that those with head injuries or fractures of the spine should not be set upright or jack-knifed in the back seat of a car. If they understand the reason for this, first aid will be improved. Fractures of the upper extremities, I feel in most cases, can be taken care of by some simple padded splint, such as a board or metal splint and the use of a sling. The Navy apparently took exception to the use of the full-ring hinged splint for fractures of the arm. They believe that in fractures of the humerus the arm should be placed in a sling and let gravity take care of the fragments where the victim can sit up or stand. I do believe, however, that in civilian practice, there is no danger from the pressure of a full-ring splint where the distances to the hospital, as I have stated before, are short. Fractures of the lower extremities are best taken care of without question in a half-ring hinged splint. Fractures of the ankle and foot in my

opinion are best immobilized by the use of a pillow splint.

In connection with the ring splints, as mentioned above, I wish to call your attention to the fact that due to the efforts of Dr. Webb and his Committee, an ordinance has been passed in Minneapolis whereby the ring splints for both the upper and lower extremities are carried in all ambulances. The ambulance not only must have the splint but the ambulance attendant must be able to apply it before he is able to obtain a license to operate an ambulance. This does not make it necessary for the men in Minneapolis to carry splints in their cars. However, I believe it would be a good plan for any doctor dealing in fractures to carry such splints. I would suggest that you read this ordinance which has been recently passed in Minneapolis and possibly use it for a model in your own communities for a similar ordinance.

In conclusion, I wish to state that first aid can be brought to smaller industries by the instruction of lay people provided the rules are simple and instruction is limited to first aid and not treatment.

WHAT THE MEDICAL PROFESSION CAN DO TO INCREASE SAFETY AND HEALTH IN WAR INDUSTRIES

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DOCTOR GEORGE McLEAN is dead. He died the other day at a ripe old age. He died in sunny California—far from the wind-swept prairies of Dakota Territory, where he practiced medicine in the eighties and nineties of the last century.

Through the years I have retained a distinct interest in "Doc Mac"—as he was known far and wide. He officiated at my advent into the world, my immediate world then being a log structure with a sod roof. He also was on hand when my older sisters and brothers came along. It seems that our birthdays were all arranged for the summer and early fall so that the snow-blocked trails of winter would not bog down

Doc's fast-traveling horses. The day came when Dr. George McLean decided to pull up stakes and move elsewhere.

I clearly recall him driving up to our new house one summer's day. He was driving his span of high-stepping bays which were the envy of every lover of horse flesh. Tied to the back of his buggy was his beloved organ—a beautiful solid walnut affair which he had brought on from his native Vermont. He threw the reins to his driver and leapt from the buggy. He was short of stature and purposeful in stride. It could be said of him that, like Napoleon, who he tried to emulate, he would appear to be "strutting while sitting down."

"Nels," he said to my father, "I am moving

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on to new pastures." My father wanted to know why. "Well," he said, unmindful of us children who circled the two men, "these goddam specialists are beginning to crowd me. They have fancy, hifalutin' names for a lot of plain ordinary aches and pains and I'll be damned if I am going to stay around and have my patient's force me to become one of them. I am giving you my organ for your new house and I won't be around to see any more Wolds into the world."

And so, Dr. George McLean moved a hundred miles farther West—where the specialists were unknown. Later on we heard that he had moved still farther West, for the same reason, I suppose. But he gave the organ to my father and he also parted with the one sheet of music he was able to play. On that sheet of music was the picture of the famous Corsican whom he idolized, and the title was "Napoleon's March." Yes, Doc Mac was on the march, constantly on the march. And now he is dead. When he died an era went with him to Valhalla. It was the era of the old-time, horse and buggy, family doctor. The only reason I have for relating this episode out of the past is to enable me to put the question: "Is there a doctor in the house?" Or are you mostly specialists here today?

Today there are a lot of doctors "on the march." They are on the march into the Army, the Navy, the Marine Corps. When the Specialists in Destruction—Hitler, Mussolini and Hirohito—are on the loose, our tremendous armed forces are going to suffer the inevitable ills and injuries of mechanized warfare. In 1940 the Army had 1,200 doctors in service; in this year of 1942 the number will increase to 15,000 and in 1943 it is anticipated that 33,000 doctors will be in Army uniform. The Navy will have 10,000 or more. In 1944 it is expected that 60,000, or one-third of the country's 180,000 doctors, will be in service.

This means that in so-called favored areas each 1,000 civilians will have to get along with not more than three doctors and in rural areas each doctor will find some two thousand civilians on his hands. Under such circumstances there is not going to be a great deal of room for the specialist—every doctor in 1943 and 1944 is going to find himself becoming a family doctor. More and more as we get into this War we will find it becoming a family affair in this country. One or more members of the family will be in the

armed services; one or more members of the family will be engaged in war production work; other members of the family will, because of age or physical conditions, either be attending school or maintaining the home. That is the situation in totally mobilized England; that is the situation we will have to accept here. It is to be assumed that the armed services will have proper and adequate care. Are the remaining doctors going to be able to maintain present health standards on the home front?

Let us see what has happened to the so-called home front in Germany. The health of the German people has been undermined by years of hard work, long hours and malnutrition. The population of Germany is approximately 85,000,000; that of the United States about 133,000,000. Comparative figures for the two countries on three outstanding diseases can be enlightening. The statistics on Germany are from the *Reichsgesundheitsblatt*.

Diphtheria

	Year	Cases	Year	Cases
Germany	1939	128,897	1941	154,752
United States	1940	18,061	1941	15,536

Scarlet Fever

	Year	Cases	Year	Cases
Germany	1939	119,730	1941	226,735
United States	1940	155,464	1941	128,490

Tuberculosis

	Year	Cases	Year	Cases
Germany	1939	69,502	1941	88,312
United States	1940	103,348	1941	106,372

The mortality rate from tuberculosis increased, in Germany, from 81.8 to 104 per 100,000; in the United States it decreased from 44.4 to 42.2.

Looking no farther ahead than the next two years we will find that rationing of fuel may make our homes much colder; rationing of tires and gasoline will, very likely, reduce participation in healthful recreational activities. We have had some rationing of food and may get more restrictions. High prices on clothing are in the offing unless "ceilings" are put into effect. All these factors are going to affect the family health.

The doctor's home front problem of maintaining present health standards will steadily increase as we approach the 100 per cent total mobilization point. Perhaps one of the bigger problems will be that of the mother who is now working in a war production plant and trying to maintain her home on an even keel at the same time.

Two months ago we had some 400 Minnesota plants engaged in war production; today, two months later, the number has increased to over 700. Day by day men and women are leaving accustomed tasks and going to new and untried war work; day by day the percentage of women going into industrial work is growing. The problem of the plant safety engineer is becoming more complicated; the problem of the doctor will become more complicated too as he finds his work steadily veering into industrial ills.

I want to try to give you a word picture of the prodigious war production program in which our country is engaged. The facts are stupendous—but they are facts and not figments of the imagination. Let us take SHIPS. In 1942 and 1943 the program calls for 23,000,000 tons of ships. Not navy ships but merchant ships. And they are being built on schedule—and ahead of schedule. Out on the Pacific Coast one shipbuilder is now turning out a 10,000-ton ship every 46 days. If you were to put the ships we are building in a row you would have a 5,000-ton ship for every mile between Duluth and Moscow—a distance of 4,600 miles!

Let us take anti-aircraft guns. The war production plants of the United States will be rolling out 65,000 of the "ack-acks" this year and next. This means—if you want a visual picture—that you could place an anti-aircraft gun every 13 feet between Duluth and the Twin Cities and have several to spare.

And tanks—armored tanks rolling on rubber caterpillar tracks and bristling with high-powered guns—are now rolling out of the factories at a greatly accelerated rate. This year and next we will turn out 125,000 of them. Not small baby tanks but gigantic tanks which will shudder the earth as they roll along.

Start, if you please, at New Orleans and in Louisiana, where so many of our boys are in training camps and your procession of tanks—with 10 feet between them—will lead up through Arkansas, Missouri, Iowa, Minnesota and up to Winnipeg—a continuous line of rumbling, grum-

bling mammoth tanks from the Gulf of Mexico to the prairie capital of our Canadian ally. Turn these tanks at right angles and they would sweep forward in a solid rank—a tank every 65 feet.

Perhaps the pictures of ships, anti-aircraft guns and tanks—the stupendous job of producing them—hasn't fully impressed you. So let us consider the airplanes we produced in 1941, are turning out in ever-increasing numbers this year, and the production scheduled for next year—1943.

Let us start in New York Harbor—at the base of the Statue of Liberty—and place the planes wing tip to wing tip. You can walk on the wings of the planes and step from one plane to the next and how far do you think your trip will take you? You will pass through New York City—the world's greatest assembly of human beings—on into Pennsylvania—with her vast stretches of coke ovens and blast furnaces turning out munitions of war from the ores of Minnesota. You will pass on into and through Ohio—and you will think of the rubber factories at Akron and the great Curtis-Wright Field at Dayton—and you will think of the Wright brothers as you leave Ohio for Indiana—the home of the great steel plants at Gary—again working on iron ore from Minnesota's great Iron Range. You are still walking on the wings of a solid row of planes as you pass through the great industrial districts of Chicago and Illinois. Have you come to the end? Oh no. The solid row of planes reaches out ahead of you through Missouri through the expansive wheat fields of Kansas, through Colorado and Denver—where ocean-going ships are being built piecemeal and being shipped to the Coast for Assembly. The end is not yet. The solid row goes on and through Utah, through Nevada and on to the great airplane plants of California—where in two plants alone 60,000 workers in each are helping turn out this solid row of planes on which you have crossed the continent. Two hundred thousand planes in 1941, 1942 and 1943. Wing tip to wing tip they would stretch across the entire United States and a hundred miles into the Pacific!

Airplanes can travel by air and ships can travel by sea but the raw materials for the munitions of war have to be shipped by railroad. Over a million workers—hardbitten railroad men—have been so well trained that when the emergency came they were ready. Today the railroads of the country are hauling over one million tons of

freight a mile every minute of the day and night. Within a period of seven weeks following Pearl Harbor 600,000 soldiers were moved—with their guns, armament and war equipment—from the training camps to both coasts. And only one soldier out of the 600,000 lost his life. Every day 16,000 freight trains, containing some 1,700,000 freight cars, are on the move over the 235,000 miles of railroad in this country. Since the last World War the railroads have spent over \$11,000,000,000 improving their equipment and service. The average locomotive pulling power has been increased 43 per cent and locomotive failure is one-seventh of what it was during the last World War. The average freight train speed has been increased 45 per cent and the average freight car capacity has been increased from 42 tons to fifty. At the same time freight car failure has been cut to one-fifth of that in the last World War.

Since the last World War the railroads of the country have set the pace in the reduction of deaths and injuries to their employees. From 1923 to 1940 fatalities were reduced 72 per cent and injuries 88 per cent. In 1941 with the tremendous burden of transporting the munitions of war laid on them the downward trend stopped and reversed itself—an increase over 1940 of 6 per cent in each category was noted. The outstanding example of reduced accident rates despite a great increase in tonnage hauled is that of the Duluth, Missabe and Iron Range of which your chairman, today, Mr. A. V. Rohweder, is safety superintendent. It has a frequency rate of 1.76.

It can be readily understood that one of the critical problems facing industry is the matter of conversion of peacetime industry to a war footing. Hundreds of plants which last year were manufacturing radios, kitchenware, refrigerators, toys, heat-registering devices, clothes pins, etc., are today turning out bomb sights and bombs, cartridges, tanks, rifles and guns, airplanes and small ships. That means new designs, new machinery, new methods. But that is just plant conversion. An equally large problem has been the retraining of old employees and the education and training of new ones. The stenographer of last year is the spotwelder of today; the operator of a small lathe in a toy factory of yesterday is now at the controls of a tremendous press in a shipyard.

The experience of England in converting plants

and manpower to wartime needs is worthy of study. The 1940 annual report of His Majesty's Chief Inspector of Factories gives us some revealing figures. There was a great increase in both fatal and nonfatal accidental injuries. The fatalities increased 7 per cent in 1939 over the figure for 1938; in 1940 the increase was 24 per cent over that for 1939. Nonfatal injuries increased 17 per cent in 1939 over 1938 and 20 per cent in 1940 over 1939. An interesting contrast to this distressing experience was that of plants which had installed efficient accident prevention and health conservation departments. Accidents decreased progressively downward per 100 employees as follows: 1937—0.94; 1938—0.95; 1939—0.75; 1940—0.66. Indications are that more than 40,000 civilians have been killed in England, since the start of the war, by air raids. The increase in industrial accidents and fatalities cannot be attributed to air raids but the ever-present danger of air raids has drastically affected the working methods of British war plants.

Many plants are actually operating in the open in order to avoid the danger of collapsing roofs. These plants cannot be operated at night. Other plants operate with blacked-out windows and doors. This means that the ventilation problem has become a serious one in British industry. Almost every plant is required to maintain bomb shelters for its employees.

Long hours of work began to have inroads on the health of the workers. In plants which operated the clock-around and where employees were permitted to work from seventy-two to eighty-four hours per week absenteeism increased. On any one day from 15 per cent to 25 per cent of the persons employed were absent. Gradually the work week has been reduced to fifty-six hours and absenteeism has become negligible. Time does not permit to go into the travail of Britain's industrial experience—but here are some of the things which industry and medical profession have had to contend with: absence of the mother from her home while at war work; transportation of workers; board and lodging of transferred workers; day nurseries for children of war workers; malnutrition due to inadequate food supplies or to improper preparation of available food. These things are mentioned as signposts for industry, safety engineers and the medical profession in our country.

Many of our workers are now living in trailer

camps. Roads are muddy and grounds are soggy. School facilities are lacking. Sanitation is far below health standards. Taverns, dance halls and "red light" districts adjacent to war production plants have prompted the Government to issue warnings to over 8,500 of these plants. A worker lost to production because of disease, due to these conditions, is as much lost as if he had been seriously injured in an industrial accident. I can merely point to this situation and direct it to the attention of safety engineers and doctors. The doctors of today and tomorrow are going to be fewer in number; they are going to have more to do and less to do with.

In 1941 there were 17,000,00 industrial workers in this country—an increase of approximately 3,000,000 over 1940. The figures for 1942 are not available but the total is in the neighborhood of 20,000,000. The records disclose that the 17,000,000 in 1941 lost an average of nine and one-half days each due to illness and accidents. This amounted to 160,000,000 man days of lost industrial work. On the basis of today's wages in industry here was a loss of wages well in excess of one billion dollars. But, more important than the wage loss was the loss in productive power so necessary to get out the vitally important implements of war.

Safety engineers are concentrating on the job of holding accidents in check. The National Committee for the Conservation of Manpower in War Industries is having its inspectors check all war production plants. Plant after plant has set up safety programs. Here in Minnesota the Committee is working with the State Industrial Commission and the Industrial Division of the State Board of Health.

In the matter of illness of industrial workers we have, however, a long row to hoe. With five to ten million of our citizens going into the various branches of the service and away from the industrial locations, it may be that the doctors will want to concentrate more on industrial workers than they have heretofore.

The first thing the medical profession should do is to make a self-diagnosis. A medical diagnosis may turn up anything. In this case you know what you are looking for. You are trying to find out how much, or how little, you know about industrial health. You have had patients from industrial plants; have you had industrial plants as patients? You have realized, I am sure,

that in your examination of a sick or injured industrial worker that so far as preventive medicine is concerned you would like to take a look at the work environment of the patient. So, do you take a trip out to the worker's place of employment? The record says that you do not. You cure or mend the patient—if he is curable or mendable—and pass on to the next patient. Subconsciously you think that you must find out something about the working condition of plants in your town—some time. Well, some of you have picked up the ball and carried it from that point; most of you have not.

Some day an industrial plant, with an assortment of aches and pains, may want you to diagnose its ills and prescribe a cure: a cure, say, for a condition which produces absenteeism due to illnesses. But your quick self-diagnosis tells you that you are not the "doctor" for this job. You realize that you don't know what it is all about. You do one of two things: you leave the field to the industrial hygienist or the industrial doctor, so called, or you really begin to dig into this business of preventive medicine so far as the industrial workers in your town are concerned.

The modern industrial health program in a progressive factory is likely to include most, if not all, of the features enumerated below. These features are listed to show the points at which the doctors can be of service to help prevent accidents and control health conditions. These features have been developed in a survey of 2,064 industrial establishments by the National Association of Manufacturers:

1. A program of accident prevention.
2. Exhaust ventilation for dust, fumes or gas control.
3. Plant housekeeping and sanitation program.
4. Room(s) for medical examination and emergency treatment.
5. Maintenance of locker rooms.
6. Pre-employment physical examinations of all employes by doctors—industrial.
7. Maintenance of a restroom.
8. Records of all absences and illnesses.
9. Fatigue prevention program including refreshments available.
10. Employee hospital insurance.
11. Provision for recreational athletic activities.

12. Periodic checkup of illumination of work surfaces.
13. Pre-employment physical examinations of office employes by doctors.
14. Workroom temperature supervision.
15. Periodic check-up of physical examinations of factory employes.
16. Registered nurse in the plant at regular scheduled hours.
17. Maintenance of a lunch room.
18. Health education of employes to prevent ordinary illnesses.
19. Employe mutual benefit association.
20. Doctor in the plant at regular scheduled hours.
21. Fatigue prevention program including posture chairs or aids.
22. Fatigue prevention program including regular rest or relief periods.
23. Periodic check-up of physical examinations of office employes.

I have tried to give you a word picture of the tremendous war program our country is engaging upon. No one, I am sure, can be blind to the fact that with conversion from peacetime to war work living conditions will be radically affected. Health standards will come down; we are battling to hold industrial accidents in check. Equally important are off-the-job accidents on the highways and in the homes. It is going to be the job of the safety engineer to organize for accident prevention; it is going to be the job of the doctor to get the injured man back to work as soon as possible. I do not think the injured worker will want to malingering in these days of high wages.

The National Committee for the Conservation of Manpower in War Industries is glad to have the active support, in its accident prevention and health conservation work, of the Governor and other leading citizens of Minnesota. President Roosevelt has expressed his concern over the problem. On August 18, 1941, he said:

"The nation is confronted with a rapidly rising accident toll. By taking a huge toll in life and property, accidents definitely hinder our national defense effort. To insure maximum efficiency we must have maximum safety twenty-four hours a day—not only at work, but also on the highway, at home, everywhere.

"The troubled times in which we live must not make us callous or indifferent to human suffering. These unusual times require unusual safety efforts.

"I . . . call upon . . . every citizen, in public or private capacity, to . . . do his part in preventing wastage of human and material resources of the Nation through accidents."

On March 20, 1942, the President felt impelled to speak again. He then said:

"It is obvious from the very magnitude of the toll in deaths and injuries that accidents constitute one of the serious impediments to our war production—to extend accident prevention work more widely throughout the country is, therefore, a national necessity at this time (and) . . . must be regarded as an integral part of our national war effort."

This terrible war will come to an end some day. But it may not be soon. When the hostilities cease we shall have a multitude of postwar problems. I rather like the so-called "Bill of Rights" set forth by the National Resources Planning Board as the things for which we should strive in this country. I am going to list them and I direct your attention to the field of work open to the doctors of the United States. Here they are:

1. The right to work usefully and creatively through the *productive* years.
2. The right to fair pay, adequate to command the necessities and amenities of life in exchange for work, ideas, thrift and other socially valuable service.
3. The right to adequate food, shelter, clothing and *medical care*.
4. The right to security, with freedom from fear of old age, want, dependency, *sickness*, unemployment and *accident*.
5. The right to live in a system of free enterprise, free from compulsory labor, irresponsible private power, arbitrary public authority and unregulated monopolies.
6. The right to come and go, to speak or be silent, free from the spying of secret political police.
7. The right to education, for work, for citizenship, and for *personal growth and happiness*.
8. The right to equality before the law, with equal access to justice in fact.
9. The right to rest, recreation and adventure; the *opportunity to enjoy life* and take part in an advancing civilization.

At the opening of my talk I used my recollection of the pioneer doctor to point out that the

old-time family doctor may be on his way back. The problems which confront industry in war-time production do not call for specialists. The accidents which occur with their resultant injuries and the diseases which grow out of unhealthy working conditions are not such as would be strange to the family doctor. Our problem is not in the big plant employing hundreds and thousands of workers. These plants generally have men at the top of management who are seeing to it that they are organized to cope with the problem. They have safety engineers and industrial doctors on the job. Where we need the coöperation of the medical profession is in the problem placed before us by the hundreds of small plants which, so far, have felt that they

cannot afford to employ safety engineers and industrial doctors. A key worker in one of these small plants becomes a very important missing cog in the machinery of production when he goes home because of an injury or an illness.

And so, the biggest and most important help the medical profession can give the war industries of the United States is to coöperate in keeping the worker at work. I ask for 100 per cent teamwork between doctors and safety engineers in this task. Kipling expressed my thought:

"It ain't the guns nor armament nor the funds that they
can pay
But the close coöperation that makes them win the day.
It ain't the individual nor the army as a whole
But the everlastin' teamwork of every bloomin' soul."

CARCINOMA OF THE GALL BLADDER: STUDY OF SIXTY CASES

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IN about one out of every hundred cholecystectomies for stones the surgeon faces carcinoma of the gall bladder. Nearly always a very discouraging problem confronts him.

The disease was described as early as 1777. It has been noted in one in every 250 routine post mortem examinations which represents about 3 per cent of all malignancies.¹⁷ Compared with other parts of the body it is fifth or sixth in frequency.¹³ In some studies a much higher incidence has been encountered. In most statistics it represents between 8 and 10 per cent of all carcinomas in women.

Inasmuch as we have had only six decades of modern gall-bladder surgery, it is possible that further diagnostic clues may be found in recently encountered cases. Further, it is well for us to refocus our attention on a subject which all too frequently is on the periphery of diagnostic vision in our almost daily contact with biliary disease.

I have reviewed the records and specimens of the past decade available to me. Only patients in whom the diagnosis was confirmed by biopsy or necropsy were chosen. Cases with fragmentary records were discarded. On this basis sixty cases from the past decade in Twin City institutions were studied.

If any symptom pattern could be called characteristic, it is presented by a woman over fifty whose trouble began suddenly a few months before with a steady right upper quadrant pain at which time she also began to lose weight. She is apt to have had nausea and vomiting. She may or may not be jaundiced. She is not anemic. She probably has tenderness in the right upper quadrant and the chances are a mass is palpable there. The liver is enlarged. Cholecystographic studies show a nonfunctioning gall bladder.

Age and Sex.—Carcinoma of the gall bladder is a disease of the so-called cancer age. It is very rare before the age of fifty. The youngest patient in this series was thirty-one and the oldest eighty-five, with an average age of 65.4. The average age of males was sixty-eight and of females 63.3. Ninety-three per cent of the patients were over fifty. Cooper² reported the disease in a patient twenty-eight years of age which is the youngest in the recent literature. There were thirty-six females to twenty-four males, a *ratio* of 1.5 to 1. The usual ratio in the United States is three females to one male.

Symptoms.—Most of the patients gave a history which at least was suggestive of malignancy. The disease begins acutely in most cases. Pain is

From the Department of Surgery, University of Minnesota. Abstract of inaugural thesis presented before Minneapolis Surgical Society, January 8, 1942.

the earliest and most characteristic symptom. It was present in 86 per cent in this series. In only 13 per cent was there a long preceding history of gall-bladder disease ranging from three and one-half to thirty-seven years. Half gave a history of three months or less at the time of examination and in 80 per cent symptoms had lasted a year or less. Twenty per cent gave a history of more than a year ranging up to thirty-seven years and in this group it was difficult to define where the signs of malignancy developed.

Thirty-three per cent of the patients in this series specifically stated that the pain was dull and constant, usually in the right upper quadrant or epigastrium. In five per cent the pain began as colic and ended in a steady pain. In about 40 per cent, therefore, the pain was constant or became so.

Weight loss was a striking feature encountered in this series. Some patients dated the weight loss from the onset of the illness. Illingworth of Scotland suggested in 1935 that "weight loss is not a common finding in carcinoma of the gall bladder." This is contrary to the experience in most series in the United States and in my series. Seventy per cent of the patients had lost weight. In no case was a notation of no weight loss made. In 20 per cent the amount was not specified. Losses ranged from 10 to 60 pounds with an average of 27.5 pounds. In 30 per cent the weight loss preceded or was concomitant with the onset of other symptoms. Nineteen of the twenty-nine patients who had lost specific amounts of weight also complained of anorexia, nausea, vomiting or all three. Loss of weight was present in every one of 48 cases reported from the Boston City hospital by Jankelson in 1937.⁸

Jaundice was present in 51.6 per cent of cases at the time of examination. It was usually of gradual onset and steadily increasing severity. Terminal icterus indices up to 135 and 178 were found frequently. In the severely jaundiced patients ductal obstruction was found. Liver metastases usually accounted for the milder types. In one case jaundice was due to torsion only of the common duct. Anorexia, nausea or vomiting or all three were found in 70 per cent. Bloating and belching were found in 45 per cent.

A mass was felt in the right upper quadrant in 48 per cent in this series. It usually was described as hard and nodular and moved with respiration. Sixty per cent of those with a mass

complained of tenderness on palpation of that mass. This is contrary to some statements made in older literature. The liver was enlarged in 48 per cent.

Roentgen Diagnosis.—A nonfilling gall bladder with or without stone shadows is to be expected in carcinoma of the gall bladder. Cholecystograms were made in twenty-five of the sixty cases. All showed a nonfunctioning gall bladder. In twelve calculi were visible on x-ray.

Kirklin stated in 1932⁹ that he was able to diagnose papilloma and adenoma in the gall bladder with considerable accuracy but had not yet made a diagnosis of carcinoma of the gall bladder. He reviewed the roentgenograms of sixteen proven cases of carcinoma. Fourteen gave no dye shadow. Half showed stones. One showed stones with good function and one had a normal cholecystogram. Spitzenberger¹⁵ made a correct diagnosis in two cases on the basis of a fistulous connection between the gall bladder and neighboring viscera.

Stones were found in 70.1 per cent in this series. Recent studies show an incidence of 48 to 100 per cent. The hemoglobin was reported in forty-five cases. The average was 74 per cent. The cases with the lowest values, 26, 34, 45 and 46 showed evidence of hemorrhage into the gastro-intestinal tract.

Pathology.—Fifty-four were adenocarcinomas. Four squamous celled tumors were found. There were two colloid carcinomas.

Grossly scirrhous carcinoma was the most common type found. The gall bladder wall was hard and cartilaginous to palpation. A few cases had involvement of the whole gall-bladder wall and the lumen was obliterated. Microscopically the lesion was an adenocarcinoma with more or less fibrous stroma. Sometimes a tubular structure was maintained whereas in others cells were scattered about in a dense fibrous stroma.

Papillary carcinomas were less frequent. Microscopically the structure was that of a columnar celled adenocarcinoma. Colloid carcinomas filled the lumen of the gall bladder. The four cases of squamous celled carcinoma resembled the scirrhous in gross structure.

It has been written that carcinomas of the gall bladder originate chiefly in the fundus. It is extremely difficult to identify the source in such

CARCINOMA OF GALL BLADDER--MATTSON

TABLE I. INCIDENCE OF CANCER IN CASES OF CALCULOSIS OF THE GALL BLADDER

	Percentage
Erdmann	1.4
Kehr	3.0
Heller	3.34
Gessner	4.0
Rolleston	4.5
Moynihan	5.0
Lentze	5.1
Riedel	7.8
Fawcett and Rippmann.....	8.1
Graham	8.5

an organ as the gall bladder. Very few are seen early. On the basis of surface area alone the fundus would be the more frequent site. Stewart, Lieber and Morgan¹⁶ reviewed twenty-seven cases reported in the literature as being primary in the cystic duct and from the evidence were not certain any of them were primary in the cystic duct.

Because of the extensive lymphatic drainage of the gall bladder and proximity to other organs, metastases are frequent and early. Often the indurated area was in the gall bladder wall facing the liver and in such instances the carcinoma already had penetrated several centimeters into the liver. Metastases were noted in the liver in thirty-eight cases, porta hepatis in nineteen, peritoneum in eleven, cystic duct glands in eleven, retroperitoneal lymph nodes in six, omentum in six, lungs in four, duodenum in four, pancreas four, colon four, suprarenals three, mesenteric lymph nodes three, kidneys two, spleen two, stomach two, sternum one, mediastinum one. In one case a metastasis to the humerus was the first intimation of the disease. In one case the duodenum was involved directly causing obstruction.

There is difference of opinion regarding the direct etiologic relationship between calculi and carcinoma. The experimental evidence is not entirely convincing. Even though a direct relationship has not been proven, it is well established that the two conditions occur most frequently together and calculi at least are a warning sign. The early surgeons encountered carcinoma of the gall bladder more frequently in the days when calculi and inflammation were allowed to battle it out with the body for longer periods. W. J. Mayo¹² found carcinoma in five per cent of a series of 405 operations on the gall bladder in 1902.

Graham⁴ has concluded that 4 to 5 per cent of women of cancer age who have gall stones will

TABLE II. INCIDENCE OF CALCULOSIS IN CANCEROUS GALL BLADDER

	Percentage
Seide and Geller.....	48.5
Gray and Sharpe.....	50.0
Judd and Gray.....	64.6
Jankelson	68.9
Lichtenstein and Tannenbaum.....	69.3
Liebowitz	71.4
Shelley and Ross.....	73.7
Boyd	80.0
Teidemann	85.0
Lam	87.0
Warren and Balch.....	88.0
Judd and Baugartner.....	94.0
Abell	100.0
Boyce and McFetridge	
Average in 1,000 cases.....	73.4

develop carcinoma of the gall bladder. The mortality rate for all types of risks at Barnes hospital for the three years ending 1930 was 1.5 per cent. Lahey,¹⁰ Graham,⁴ Boyce and McFetridge¹ and Lam,¹¹ among recent authors, advocate prophylactic cholecystectomy in women who have gall stones. Before any such policy is undertaken for the country at large one should be armed with mortality and morbidity figures, which are not available at present. If removal of all gall bladders with stones with or without colics should not be advocated for the country at large it is not a criticism of the principle as such.

There is then no diagnostic clinical picture for carcinoma of the gall bladder. The clinical picture will fit many cases of benign biliary disease or cancer in other organs. The following points can be stressed: (1) advanced age, (2) steady dull pain or a change from ordinary biliary symptoms to a more steady pain, (3) weight loss with onset soon after the constant pain, (4) absence of anemia and later presence of (5) a tumor mass in the right upper quadrant and probably jaundice.

It must be admitted that in the present state of our knowledge the outlook is gloomy for diagnosis early enough to salvage these patients. There is no instance of successful removal in this series. Gray⁵ and Paine¹⁴ have performed V excision of a portion of the liver in eliminating contiguous metastases. More general use of peritoneoscopy should eliminate some exploratory operations which only hasten the end of the patient.

More hope lies in revision of our attitude toward the patient with gallstones who is fifty or beyond and who has had one or two attacks of colic. A gall bladder with stones has a greater chance of developing carcinoma than one with-

out stones. Even though the danger of loss of life from carcinoma of the gall bladder were the same or less than the danger from operative procedure, there are other possible tragic developments than malignancy to consider. We should have more follow-up studies like that of Jaguttis,⁷ who traced 114 cases of cholelithiasis treated conservatively for ten to twenty-five years. Five developed carcinoma of the gall bladder, thirteen died of cholecystic disease, twenty-five were operated on for complications, four of whom died. The above does not consider the human suffering which must have been involved.

Calculi are associated with either inflammation or carcinoma.

Innocent gallstones are a myth.

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THE USE AND ABUSE OF CHEMOTHERAPY

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THE sulfonamide compounds are effective in the treatment of many bacterial infections. While very satisfactory results have been obtained in the treatment of certain types of pneumonia, I should like to discuss briefly with you some of the uses and abuses of sulfonamide therapy in upper respiratory tract infections. The widespread use of the drugs for the mildest forms of respiratory diseases of doubtful etiology has been looked upon with considerable apprehension by many physicians. It is becoming apparent that following such a practice, more and more individuals are being rendered sensitive to the sulfonamide compounds, and the incidence of disastrous reactions may be expected to increase. The State of Minnesota is to be commended in the attempt to control the promiscuous use of these drugs. Sulfonamide compounds may not be dispensed without a prescription by a registered physician.

When one considers the incidence of the common cold, and the many forms of treatment and

preparations that have been used in the therapy of this affliction, it was to be expected that the sulfonamide drugs would be given a trial. It is now generally agreed that the sulfonamides are not specific for the common cold. One of the principal difficulties is that the precise etiological agent has not been defined. Epidemics of the common cold are probably of virus origin. Nevertheless, it is a prevalent practice to prescribe a sulfonamide drug for the treatment of this disease. Usually small doses of the selected drug are given over a period of two to three days, and sometimes for a longer period. In defense of such a procedure, it is argued that since the common cold may be succeeded by secondary bacterial infections such as pneumonia, the sulfonamides act as prophylactic agents. With rare exceptions, I do not subscribe to such a routine practice. In the first place, such a procedure gives the individual a false sense of physical security. Too often, instead of going to bed for a day or two the patient keeps on with the daily routine having the feeling that he is being protected against any serious consequences. In the

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second place, the great majority of common colds constitute only a minor illness, but the person who has received a sulfonamide may ascribe the termination of his illness to chemotherapy. Many such individuals have a succession of colds, and each time they are tempted to utilize their sulfonamide tablets. Frequently one learns the original medication was initiated by a physician, but when the patient or other members of the family were subsequently the victims of acute coryza, the remaining supply of tablets in the medicine cabinet was utilized without the advice of a physician. Or lacking the drug, the patient has prevailed upon the good nature of his doctor to refill the prescription. The intermittent use of small doses of a sulfonamide will lead to drug hypersensitivity in not a few individuals. I need not dwell upon the disastrous consequences that may be encountered in an individual sensitized to one or all of the sulfonamides. Our policy in the treatment of the common cold is to follow the orthodox procedure; that is, to advise the patient to go to bed, and to treat him symptomatically. If and when a more serious bacterial infection should ensue, then the appropriate sulfonamide is prescribed in full therapeutic doses.

We do use the sulfonamides for prophylactic purposes in selected groups of individuals having an acute coryza. It is now generally agreed that only a rare patient with bacterial endocarditis will respond satisfactorily to sulfonamide therapy. Since the first manifestations of this highly fatal disease, not infrequently, are preceded by an upper respiratory infection, we have recommended that any individual having a congenital or acquired endocardial lesion should go to bed at the onset of a respiratory infection, and take 0.5 gram of sulfathiazole three to four times a day for two to four days. We also have prescribed similar doses of sulfathiazole or sulfadiazine for obstetrical patients who have an acute respiratory infection at or near term.

The sulfonamides have also been used extensively in the treatment of acute pharyngitis, or "sore throat." Here again, the mild character of the illness in many cases does not warrant the routine use of the drugs. Some patients with a pharyngitis of hemolytic streptococcal origin may be acutely ill. In these cases we feel justified in using sulfadiazine in full therapeutic doses; that is, 1 grain per pound of body weight per twenty-four hours in small children, and for adults, an

initial dose of 3 to 4 grams and then 1 gram every four to six hours. The vast majority of cases of acute tonsillitis are caused by hemolytic streptococci. During the past year, sulfadiazine has been used in the treatment of these patients with satisfactory results. The therapeutic response has been by no means dramatic, but many of the patients feel and look better coincident with the use of sulfadiazine.

Acute tracheo-bronchitis may be due to different biological agents. I have been reluctant to use the sulfonamide compounds for this condition, but some of my associates have insisted upon a trial of sulfadiazine not only in their patients, but when they themselves were the patients. Coincident with the administration of sulfadiazine, improvement in the condition of the patient has frequently been apparent. The doses used were approximately those prescribed for patients with pneumonia. We have not been favorably impressed by the results of chemotherapy in patients having chronic bronchitis.

Influenza is a loosely used term. Epidemic influenza is due to a specific virus, and chemotherapy is without effect in experimentally induced infections in the lower animals. Likewise, sulfonamide therapy is not effective in proved human cases of epidemic influenza. As Finland and his associates have pointed out, sulfathiazole and sulfadiazine have been of considerable value in secondary pulmonary infections due to the staphylococcus in patients from whom the influenza virus was also isolated. It is not at all unlikely that sulfonamide therapy may be beneficial for prophylactic purposes when epidemic influenza occurs in a community in association with a high incidence of pulmonary complications.

During the past few years physicians in various parts of the country have encountered many cases of atypical pneumonia of doubtful etiology, and often called virus pneumonia. Many physicians in Minnesota have encountered such cases. The general impression is that the sulfonamides are not very effective therapeutically or prophylactically. However, it is my policy to administer a sulfonamide, usually sulfadiazine, to every patient having evidence of pneumonia. Full therapeutic doses are given for at least forty-eight hours. If at the end of this time, the biological cause of the infection has not been defined, and the patient shows no improvement, chemotherapy is discontinued. In a few instances, where we

have not been able to make a bacteriological diagnosis, the patients have responded quite well following sulfonamide therapy. It is possible that these cases represented pneumococcal infections, although we were unable to isolate pneumococci.

In conclusion, I would like to emphasize that the availability of the sulfonamides has marked a tremendous advancement in our therapy of pneumonia and its complications. The promiscuous use of these drugs for mild respiratory in-

fections of doubtful etiology has afforded questionable therapeutic results, and has provoked many instances of hypersensitivity to the compounds. The medical profession must assume a more critical and conservative attitude for the present in this type of therapy. This must be done in order to correct the present attitude of many lay people who have been led to believe that sulfonamide therapy is an established and harmless procedure in the management of respiratory infections.

THE USE AND ABUSE OF DIGITALIS

(Abstract)

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IN spite of all the advances made recently in drug therapy, digitalis remains unrivalled in the treatment of heart disease. Strophanthus and squill belong to the same group but these are not as effective. Strophanthus is used very little in this country though quite extensively in France.

The active principal of digitalis is a glucoside which is a combination of a sugar with the digitoxigenin and as such penetrates the cells more readily to become fixed to the muscles.

For a long time it was thought by many that digitalis was effective only when auricular fibrillation is present and that its effectiveness was due mainly to the slowing of the heart. They overlooked or minimized the primary action of the drug. This primary effect is directly on the myocardium where it increases the force of the systolic contraction and thus helps to empty the ventricles more completely in a failing heart. In addition to increasing the force of the systole the *time* of systole is shortened which allows more time for the diastolic filling of the ventricles and for the recovery of the heart muscles. As Dr. Visscher has so well established through his careful researches, digitalis increases the mechanical efficiency of the heart muscles. The drug may cause marked improvement in heart failure even without cardiac slowing. Cardiac slowing is brought about directly, indirectly and reflexly. Indirectly the excessive irritability of the myo-

cardium is reduced through an increase of the coronary blood flow. When the heart is properly digitalized the cardiac output is increased, the velocity of the blood flow is more rapid, the blood volume is lessened and the heart muscle tone is improved. This is accompanied by an increase in the circulation velocity and usually a decrease in the venous pressure as a result of the improved cardiac output. The blood pressure itself is not directly affected. In congestive heart failure with edema the urinary output is often greatly increased because of the improvement in circulation. Digitalis has no direct diuretic effect on the kidneys. The electrocardiogram may be affected by digitalis in a prolonged PR interval, a shortened QT and depressed ST and T segments. The toxic effect of the drug from overdosage manifests itself through anorexia, nausea, vomiting, diarrhea, abdominal discomfort and visual disturbances. There may be also fatigue, malaise, headache and delirium. It must be remembered that as much as 90 per cent of the drug is usually fixed in the extracardial tissues. The drug is slowly eliminated or destroyed and therefore cumulative toxic effects must be guarded against. It is important to know the optimum dosage of digitalis for each specific case.

Doses of five and ten drops of the tincture of digitalis three times a day in an untreated case are quite worthless since such small doses are insufficient to digitalize the heart or even to be used as maintenance doses. Large doses should be

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given at first to "saturate" the heart muscle with the drug. In severe cases of decompensation as much as eight cat units may be given in a single dose followed by four cat units in four or six hours and then two cat units repeated every four to six hours until evidence of a proper therapeutic effect has been obtained. From then on from one to two cat unit doses should be given as a maintenance dose under careful observation at first. The slowing of the pulse especially in a case of fibrillation is one of the guides for optimum dosage. From fifteen to twenty-two cat units may have to be given in twenty-four to forty-eight hours in order to obtain digitalization. Toxic symptoms must be avoided. The powdered leaf in either tablet or capsule form is becoming more popular than the tincture. Digitalis should be given orally whenever possible. In cases of nausea and vomiting the tincture can be given in a small quantity of water by rectum as a retention enema. In emergency cases the

more purified forms may be given intravenously. This requires special care.

A word should be said as to the indications for digitalis therapy. From a proper knowledge of the physiological effects of digitalis on the heart one is soon convinced that the only real indication for this drug is congestive heart failure. Congestive heart failure from any cause requires the use of digitalis. The etiology of the failure is quite unimportant except that in toxic and degenerative heart lesions the dosage is usually smaller and the drug is administered with greater caution. The principal conditions in this group which may result in heart failure and in which the heart is more sensitive and therefore more susceptible to early toxic effects are coronary thrombosis, the toxic myocardium of acute infections and heart failure associated with hyperthyroidism. With these precautions in mind one can confidently treat heart disease with digitalis and be justified in expecting satisfactory results.

"BUSINESS AS USUAL" OUT

"Business as usual" is out for the private physician and the health officer just as it is for the huge industrial concern, the small manufacturer, the butcher and the baker, Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, declared at the meeting of the Southern Medical Association.

Even if available medical services are rationed under National Service Legislation, as has been proposed and discussed in recent weeks, great efforts must be made, he warned, to increase the supply of personnel. This means keeping enough physicians in medical schools to teach and train more doctors. Medical students and, if the draft age is lowered, premedical students could, he suggested, be enrolled as a special category of professional manpower and, upon completion of internship, allocated among the Army, Navy and civilian services.

"This," he said, "would eliminate the present uneconomical procedure under which the Army and the Navy compete for medical students by commissioning them in numbers which may later prove disproportionate to the needs of the respective services.

"Much depends now and more will depend after the war upon a continuing flow of young, able-bodied physicians of the highest caliber."

The Medical and Health Committee, he reported, has recently approved a plan for increasing the number of graduate nurses and meeting the growing deficiency in hospital nursing services. The plan calls for speeding up the basic training course for completion in 24 months, after which third year students would go on the payroll of the parent hospital or affiliated institutions. They would live outside the hospital, thus leaving dormitory and classroom space for more students. They would not receive their certificates until after three years of training, but their release in the last year would supply civilian hospitals with replacements for the general duty nurses who have been drawn into war service. The physical facilities for nurse training would be increased by one-third and hospitals would be provided with an augmented staff for war duty.

The tough job of supplying medical services in critical areas now lacking them, Dr. Parran said, can best be handled after the manner of handling other tough problems, by breaking it up into a lot of little ones and handling them one by one. Following this thought, plans for meeting needs in different communities will be worked out individually. Such plans are now being made by the Procurement and Assignment Service and the Public Health Service.

Health departments must be protected from too great draft of their manpower. Taking one public health physician from his job, he warned, may mean that three private practitioners will be needed to cure the unprevented sickness. Health departments, however, must cut out all frills, unnecessary inspections, complicated record keeping and long-range programs of doubtful value.—*Science News Letter*, November 21, 1942.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

A. J. Hertzog, M.D., and S. V. Loisness, M.D.
Pathologists

Presentation of a Case

DR. BLACKMORE: This patient is a sixty-year-old white male who entered the hospital because of a painful ulcer on the left great toe and swelling of his lower extremities. He was apparently well until eight months prior to admission when he noticed a cyanotic swelling of both hands and pain along the lateral posterior portion of his left thigh. This disappeared and did not recur. About three weeks prior to admission, swelling of his legs began and he developed an ulcer on the left great toe. On questioning, he stated that he had swelling of the lymph nodes of the neck and axilla for the past fifteen years. These had never caused him any discomfort. He had no other complaints, and his family history was noncontributory. He spoke English poorly and a history was obtained with difficulty.

On physical examination his temperature and pulse rate were normal; his blood pressure was 165/80. His hands were swollen and showed a scaly dermatitis. His legs were also swollen and showed a scaly inflammation of the skin. There was an ulcer on the left great toe and bilateral hallux valgus. The chest was clear and resonant, and the heart showed no abnormalities. The liver and spleen were not palpable. There was bilateral enlargement of the cervical, axillary and inguinal lymph nodes; they were discrete and varied from the size of a pea to that of a walnut. There was a small mass in the left lower quadrant of his abdomen that was felt on deep palpation and thought to be enlarged lymph nodes. The remaining examination showed nothing of note. A urinalysis was essentially negative. His hemoglobin was 86 per cent, red blood count was 4,500,000, and a total leukocyte count was 24,850. The differential leukocyte count showed 76 per cent lymphocytes, 17 per cent neutrophils, 5 per cent monocytes, and 2 per cent eosinophiles.

DR. HERTZOG: Did a morphological study of the blood smear reveal any immaturity in the lymphocytes?

DR. BLACKMORE: The majority of the lymphocytes were of the small mature variety, and no immaturity in any of the leukocytes was found.

DR. PETIT: Could this be a leukemoid reaction?

DR. SCHLEICHER: Leukemoid reactions generally affect the myeloid cells rather than the lymphocytes, and in this particular case, such a reaction is not strongly considered.

DR. HERTZOG: In a leukemoid reaction, there should be some immaturity in the white blood cells.

DR. GRATZKE: The radiographs of his chest do not reveal any definite abnormalities. There is a suggestion of cardiac enlargement of the left ventricular type.

There is shortening of the thoracic cage and some collapse of the vertebral bodies. Radiographs of his hands and feet show a marginal sclerosis that is associated with chronic arthritis. There is a marked hallux valgus of both feet. I do not see anything particularly abnormal in these films.

DR. HERTZOG: Was there any explanation for the skin eruption and edema of his extremities?

DR. BLACKMORE: The skin eruption was considered by the dermatologists to be a nonspecific variety of chronic dermatitis, and in his lower extremities probably related to varicosities. The edema was thought to be on an inflammatory basis secondary to the dermatitis.

DR. HERTZOG: One would naturally think of chronic lymphatic leukemia with the generalized lymphadenopathy, 24,500 leukocyte count and 76 per cent lymphocytes. However, the blood smear in itself is not diagnostic of leukemia because of the lack of immaturity in the lymphocytes. One can only say that the blood picture is compatible with, and suggestive of, chronic lymphatic leukemia. The term aleukemic leukemia is used to describe those cases of leukemia where no immaturity can be demonstrated in the peripheral blood. The total leukocyte count is often normal or below the normal range. It is in these cases that we have to rely upon bone marrow studies and lymph node biopsies to establish the diagnosis.

DR. BLACKMORE: An aspiration of the sternal bone marrow and a biopsy of an axillary lymph node were done. Dr. Schleicher will give us the result of his bone marrow study.

DR. SCHLEICHER: There was the possibility that the blood picture and chronic lymphadenopathy in this case were the result of the skin lesions. It must be kept in mind that frequently it is not possible to give an interpretation of the blood picture until it is correlated with the clinical findings and bone marrow pattern. Hence a bone marrow aspiration was done to determine whether the marrow was involved in a leukemic condition. A biopsy of a lymph node was done, as a double check is often desirable since one or the other or both methods may establish the diagnosis. In this case, on aspirating the sternal marrow, numerous small particles of tissue ranging from less than a pin head in size to 2 mm. in diameter were found. This is quite an unusual finding. I will pass around a test tube with these minute tumor masses suspended in a fixative. Besides the usual smears made from the aspirated marrow, the small tumor nodules were placed in Helly's fixative and paraffin sections were made just as with any other tissue. I will now demonstrate one of these slides with the lantern. The tumor masses are composed of reticulolymphocytes, medium and small forms. The latter are morphologically identical with those observed in the peripheral blood. The pattern of the tumors suggests local production of lymphocytes. Mitosis is infrequent. They have not as yet replaced large amounts of myeloid and erythroid tissue since large patches of normal marrow are seen between the nod-

ules. It appears that the process destroys bone trabeculae and compresses or injures hematogenic tissue. When large, the process may be seen by x-ray as rarefactions. In view of the long history given by the patient, I would venture to say that the process is slowly growing. This is a variety of lymphatic leukemia first described by Zanaty in 1934 as "leukemic lymphoma of the bone marrow." Storti, in 1937, pointed out that in these cases a lymphadenopathy, splenomegaly or hepatomegaly may or may not be present. The lesion may be restricted to the bone marrow with other organs only slightly or not involved. You are aware of the fact there are differences of opinion whether leukemia is a neoplastic process or a benign hyperplasia. I favor the former concept.

DR. LOFSNESS: Why is this type of leukemia so rarely observed and how large may these tumor masses reach?

DR. SCHLEICHER: The reason is the tendency of many pathologists to omit an examination of the bone marrow in frank cases of leukemia. The nodules may vary from a size of a pin-point to that of a pea. The latter type generally produces demonstrable changes in the skeletal system. In this case, the nodules were too small to produce any changes in the bones as seen by x-ray.

DR. HERTZOG: Did you make any smears or imprints from the bone marrow besides the sections of the small nodules?

DR. SCHLEICHER: Yes, imprints and spread preparations were made. They showed a small number of reticulum cells differentiating toward lymphocytes. These immature lymphocytes are reticulolymphocytes. Medium sized lymphocytes were present in a moderate number. The small mature lymphocytes constituted the predominant elements. Occasionally a mitotic figure was observed.

DR. LOFSNESS: I will show with the projector the first slide made from the biopsied axillary lymphnode. It shows only partial obliteration of its normal architecture; many of the sinuses are intact. In other parts of the node, there is a uniform proliferation of small lymphocytes replacing the normal pattern. If the whole node looked like this, one would say that it was leukemia. However, as the node is only partially involved, we can say only that it is probably leukemia.

STUDENT: What else could it be then?

DR. LOFSNESS: One has to consider nonspecific hyperplasia or, if you want to use the term, lymphadenitis. However, we made more sections from this node nearer the center. These latter sections show complete obliteration of the normal structure by a marked proliferation of small discrete round cells. This section is diagnostic of leukemia.

DR. SCHLEICHER: This brings out the necessity to cut lymphnodes through the middle and make at least one section from each half of the node. The findings in the lymphnode agree well with those in the bone marrow.

INTERN: Is there immaturity of the lymphocytes in the lymphnode?

DR. HERTZOG: It is very difficult for the pathologist

to recognize immaturity of lymphocytes in sections of fixed tissue with hematoxylin and eosin stains. The diagnosis of leukemia in this lymphnode is based more on histologic criteria than on cytologic changes. When we wish to study the cytology of cells from lymphnodes, it is best to make imprints from the fresh node before fixation, and stain them with May-Grunwald-Giemsa or Wright's stain, just as we would blood cells. Much of the argument in the past among hematologists has been due to attempts to classify cells from slides prepared from fixed tissue. In bone marrow studies, it is ideal to combine the two methods. We can use the dry imprint or smear method for cytological study and the fixed paraffin section for a study of the architectural pattern. We can ask Dr. Gratzek what he thinks about x-ray therapy in these chronic cases of lymphatic leukemia. I think we all agree that x-ray therapy is contraindicated in the acute cases.

DR. GRATZEK: Absolutely. In the chronic cases, one can reduce the size of the lymphnodes and symptomatically they seem to improve for a while, but you get a recurrence just as you do in Hodgkin's disease.

DR. PEPPARD: I would like to ask Dr. Schleicher to express an opinion concerning the idea of leukemia, in general, being a neoplastic disease.

DR. SCHLEICHER: I am not sure that I have the qualifications to express an opinion. I wish to say that I am in sympathy with the group that regards leukemia as a neoplasm. For a long time, Dr. Ewing has maintained that the lesion eventually undermines the health of the patient and interferes with the function of vital organs as any other neoplasm. Leukemia follows a pattern characteristic of neoplasms and this feature cannot be overlooked. There may be a benign stage which gradually shades into neoplasm, but the transition may occur over a period of many years. That leukemia may be precipitated by infections or other illnesses does not disprove that leukemia is a neoplasm. The patient eventually dies from the disease or its complications, regardless of the type of leukemia or state of differentiation. What do you think, Dr. Hertzog?

DR. HERTZOG: The question is still unsettled, but most of us believe that leukemia is a type of malignant lymphoblastoma. Some investigators readily admit that mouse leukemia is a neoplasm, but are not convinced that mouse leukemia and the human form are the same disease. I heard a paper a few years ago in which the author attempted to show that acute lymphatic leukemia was a neoplastic disease while chronic lymphatic leukemia was a separate non-neoplastic disease. I do not think many agree with him as his evidence was based largely on vital staining technique. In this part of the country, we do not consider this a reliable method.

DR. PEPPARD: I am in no position to hold an opinion or belief in anything other than what I have learned in discussions similar to this. I think I have turned more particularly towards the idea of a neoplasm.

DR. HERTZOG: If there is no further discussion, we will conclude the meeting. The diagnosis in this case is chronic lymphatic leukemia. Dr. Schleicher tells us that we are dealing with an unusual variety because of the small tumor nodules found in the bone marrow, and that it can be properly called leukemic lymphoma.

HISTORY OF MEDICINE IN MINNESOTA

THE ASIATIC CHOLERA IN SAINT PAUL

JOHN M. ARMSTRONG, M.D.

Saint Paul, Minnesota

PROBABLY few of our residents or of our local physicians know that the Asiatic cholera ever occurred in Saint Paul, or perhaps even in the United States. Since we are dealing with Saint Paul in this sketch, it is not necessary to go into the history of cholera in India. One may state, however, that it was not until the year 1831 that the disease reached Europe by way of the Caravan Route through Persia to Russia; from there it spread to Western Europe.

To understand how and why the disease came to Minnesota it may be well to outline its progress from Europe to North America. In June, 1832, the disease reached Canada with emigrants from Ireland, and from thence by way of Detroit to the United States. About the same time also it was brought to New York and in October entered the country through New Orleans. From these centers it spread westward to the Ohio Valley from the East, along the Great Lakes from Detroit to Chicago, and northward up the Mississippi Valley, and by 1833 reached as far as the Pacific Coast. In 1833, however, the eastern seaboard was almost free from the disease. The cholera again was imported to New York in 1834, and to New Orleans from Cuba in 1835 and was spread in the West until the winter of 1837-1838. For the next ten years the United States was practically free from it. In 1848 another visitation took place. The disease broke out almost simultaneously in New York and New Orleans and in 1849 overran the entire country East of the Rocky Mountains, and again the same year gained admission through Canada. By 1850, it was widespread throughout the entire Mississippi Valley, and the same year appeared in San Francisco, being introduced via Panama. In 1851 the epidemic began to abate, but in 1854 the disease again was imported from Europe and the West Indies and prevailed generally throughout North America and particularly in the basins of the Mississippi and Ohio Rivers. After 1855 only scattered cases occurred until 1866, when it again was introduced at Halifax, New York, and at New Orleans. In 1873 cholera again was imported and for the last time assumed epidemic proportions in North America.¹

In summary, these five epidemics of the disease have occurred in the United States. That of 1832-1837 did not affect us because there were no settlers in Saint Paul until 1838, and but seven families settled there that year. There is, then, no record of any cholera in Saint Paul during the first epidemic because there are no records of anything. It is true that Fort Snelling, or Fort St. Anthony as it was first called, had been established in 1819, but the records of that post from its establishment to the year 1861 are lost. The reports of the Surgeon General of the Army exist, however, and record but a single case of cholera at Fort Snelling in 1854, a recruit who was ill when he arrived.

In the year 1849, Minnesota Territory was established, Saint Paul was in-

corporated as a town, Ramsey County was organized, a newspaper started and local records began. Williams, in his *History of Saint Paul and Ramsey County* (1876), stated: "One or two cases of cholera occurred this season (1849), on May 3, L. B. Larpenteur, father of E. N. and grandfather of A. L. Larpenteur, arrived in Saint Paul and on the seventh died of cholera, aged seventy-one years. He had unfortunately contracted the disease on his journey up the river." In a discussion of this paragraph about twenty years ago, Mr. A. L. Larpenteur stated that his grandfather had left Baltimore and had come to Saint Paul by boat down the Ohio, and up the Mississippi River. He also stated that a man named Lumley, in his employ, had died of the disease some weeks later and that there were other deaths from the disease. This statement is confirmed by the United States Census taken in the autumn of 1850 as follows:

District in the County of Ramsey, Minnesota Territory
1850 Census
Deaths Year Ending June 1, 1850

<i>Name</i>	<i>Age</i>	<i>Place of Birth</i>	<i>Days Ill</i>	<i>Cause of Death</i>
Pierre Gervais	8	Minn. Terr.	42	Unknown
Magdelin Donna	60	Canada	15	Fever
Antoine Bourais	80	Canada	30	Pulmonary
Zoe Bivot	25	Canada	2	Cholera
John Baptiste	2	Canada	30	Pulmonary
Sophie Poncin	7	Minn. Terr.	3	Cholera
Alex. Ramsey, Jr.	4	Pennsylvania	14	Fever
W. A. Forbes	6/12	Minn. Terr.	21	Inflam. Brain
Phoebe Glass	8	Wisconsin	2	Burned
Mary Jane Barber	5	Iowa	3	Congestive
Albert Barber	2	Iowa	3	Congestive
John Lermley	23	Ohio	5	Cholera
James Green	40	Pennsylvania	1	Cholera
Elijah Gladden	35	Ohio	5	Cholera
Francis Robert	25	Missouri	90	Consumption
James Goodhue, Jr.	2	Wisconsin	20	Teething

Note that the population of Ramsey County was 2,197, but the county at that time embraced practically all of the present Ramsey, Anoka, Mille Lacs, Isanti and Kanabec counties. The population of Saint Paul was recorded as 1,294; almost half of these had arrived during the year. This census is the first mortality record for Minnesota. Since the record begins with June, 1849, Mr. Larpenteur's name is not included and as the record ends in June, 1850, no doubt other cholera deaths occurred later in the summer of the latter year. No attempts were made to collect mortality statistics in Minnesota until 1866 when the Board of Health in Saint Paul required birth and death certificates to be filed, although some deaths and births were recorded with the clerk of the District Court beginning about 1860. In making this statement I include church records, but these have never been collected and do not, as far as I know, give the cause of death except in rare instances. A United States census was made in 1857 and again in 1860. That of 1857 contains no mortality statistics while that of 1860 contains a list of deaths with the causes of death for the year ending June 1, 1860. No cholera deaths are recorded for Saint Paul.

To go back to John Lumley, whose name as well as that of Barbour is misspelled in the report. It seems that he was an Odd Fellow and had been initiated into the lodge only four days before his death. The Fraternity turned out at his funeral, the first they had been called on to conduct. Referring to their new white regalia, James M. Goodhue, the editor of *The Pioneer*, wrote that

he "had not seen such a display of clean linen since the Territory was formed."

It was claimed, of course, that all the cholera came from below and that no cases originated in Saint Paul. Although this was good publicity and in the main correct, it was not entirely true.

Corresponding to the general course of the disease in the United States, there probably was but little cholera in Saint Paul between the years of 1850 and 1854. In so stating, however, one must say that records of events during these years are much fewer than at later dates. Governor Ramsey, in his diary under the date of June 11, 1861, noted that a steamboat arrived in Saint Paul the day before with "a few cases of cholera aboard" and on May 23, 1852, stated: "A young woman by the name of Dibble died at noon after an illness of two days, supposed to be cholera, giving great uneasiness to our people," and again on May 31, 1852, "Several very sudden deaths in town within the last few days, generally believed to be Asiatic cholera." No doubt the following paragraph by D. A. Robertson in the *Minnesota Democrat* for June 26, 1852, referred to these or still later cases: "If you are anxious to commit suicide drink plentifully of swamp water. We know of several cases of sudden death that might have been traced directly to the use of that beverage."

Early in May, 1854, the citizens of Saint Paul began to be worried because of the increased development of cholera along the river. It being reported prevalent at Keokuk and Galena, on May 25 "at a special meeting of the Common Council called to take into consideration the sanitary condition of the city [which became a city in 1854] and for the appointment of a Board of Health," an ordinance was formed establishing a Board of Health consisting of one citizen from each ward and the city physician. There having been no city physician, the Council appointed Dr. James Dinsmore Goodrich to fill that position, and the members of the Board were John P. Owens, first ward; Lott Moffett, second ward; and George W. Farrington, third ward. Previous to this time there had been a Committee of Health of the Common Council, and it was on the recommendation of this committee on May 23 that the above special meeting was called. From all accounts I have been able to collect, this was a hard worked Board and none of them shirked his duty. Immigrants were now pouring into Saint Paul and the city, being the head of navigation, was the dispersal point for them. Each steamboat brought in a hundred or more Irish and German emigrants packed on the lower deck. Previous to this time the inhabitants of Saint Paul had been mostly French-Canadians and Americans. It is needless, perhaps, to state here that the only approach to Saint Paul was by river. The railroad reached Galena in 1854, but did not reach Saint Paul until a decade later. In the winter, therefore, the city was more or less isolated, although a stage line (Burbank's Express) ran to Prairie du Chien or to La Crosse in the winter. Accommodations by stage were limited and the journey was uncomfortable and expensive.

How the cholera was disseminated by the boats is easily understood. There was no law limiting the number of passengers or enforcing examination of immigrants. The immigrants were packed aboard on the lower deck like sardines in a box. One must not get the idea that the river itself was contaminated, as the mode of transmission was more direct. All water used on board was taken from the river and poured into barrels on the lower deck from which the crew and passengers helped themselves, dipping it out with any utensil they had at hand.

(To be continued in January issue.)

President's Letter

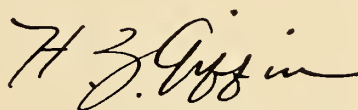
I

WE HEAR much of the four freedoms: freedom of speech and of worship; freedom from fear and from want; and the fifth is economic freedom. Medicine also has its freedoms which must be saved from dictatorial regulation. There is the freedom to learn without being told just what we should learn, the freedom to improve, the freedom of investigation and research, the freedom to treat patients as we think they can best be treated, the freedom to gain rewards commensurate with ability as well as the freedom to treat patients without charge for the good of our souls and, finally, the freedom to improve the public health by every sane, scientific method. All of these freedoms, as well as the freedoms of the patient, will slip away unless we are eternally vigilant. Medical organizations are primarily scientific and educational. Fortunately, however, there are friends of medicine and friends of science among the laity. The work of the National Physicians Committee in informing the laity and legislators of the accomplishments of medicine, and of the constant fight of medical organization for the public welfare, has brought to light many friends of medicine. This organization has been very active during recent months in contacting the members of the national Congress. It is discovering the friends of medicine who will be of practical assistance in maintaining the freedoms of physician and patient. The results indicate that more than 300 congressmen out of 435 believe they should work for the preservation of the professional (vs. the trade) status of physicians, should oppose compulsory health insurance and should favor maintaining the personal doctor-patient relationship. On this basis we can assume that they also recognize the importance of maintaining other features of the democratic way of life for physicians and patients. Our friends doubtless will not only help us in legislative matters but they will also assist in bringing about modifications in the edicts of some of those who seem to "know all the answers." Let us keep before us the importance of the freedoms of medicine and show our gratitude in every way to those who are the friends of medicine; and let us use our influences individually to discover more friends of medicine.

II

On rereading my letters of the year, I am especially impressed with the fact that the problems discussed in them have been considered so thoroughly and solved so well by the Council, by our administrative staff, and by our various committees in cooperation with existing agencies. Industrial health, medical training for civilian defense, vaccination and immunization, the control of cancer and tuberculosis, sickness insurance, procurement and assignment of physicians, and medical education during wartime are some fields in which there has been great activity. The committees on medical testimony, on tuberculosis, and on public policy attained national recognition. Others can do likewise. The work of the Committee on Industrial Health will be most important during wartime. Specific accomplishment can be attained best through the studies of committees and their recommendations to the Council. In fact, an organization may thrive or die at the hands of its committees.

The Council has been especially alert and active under the leadership of Dr. W. L. Burnap. There seems to be general agreement that our annual meeting was all that could have been desired from an educational and scientific standpoint, and especial thanks are due the various committees of Duluth which made it a success. I am happy to have had the good fortune to be your president during such a successful year. My valedictory was expressed in the annual address; there remains nothing but to retire gratefully with all good wishes to my successor and with the hope that I shall be able to be of some service to the Association in the future.



President, Minnesota State Medical Association

EDITORIAL

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BUSINESS MANAGER
J. R. BRUCE

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INDUSTRIAL HEALTH

PRIOR to the turn of the century the health
of the industrial worker received little or no
consideration on the part of the employer. Long
hours, unsanitary working conditions, the em-
ployment of children, all indicated a callous con-
science on the part of the employer and society
in general.

Much progress has been made within the
memory of many of us in improving the status
of the worker. There is no question but what
the labor union has been largely responsible for
correcting the evil of long hours and low pay
which in previous generations constituted a na-
tional disgrace. Legal enactment, the result of
an aroused public conscience, also did much to
better the status of working men and women.
The Workmen's Compensation Law is an exam-
ple. The Social Security Act, which provides for
unemployment and old age, enforces provision
for needs that are almost surely bound to arise.

In recent years there has been a rapidly grow-
ing interest in Industrial Health. Much has al-

ready been accomplished in the prevention of
industrial accidents. Much has still to be ac-
complished in the prevention not only of acci-
dents but of illness amongst the workers. The
services of physicians have been more and more
sought by industry for the purpose of reducing
accidents and sickness in the interest of greater
efficiency. This has applied mainly to large in-
dustrial plants, while the smaller concerns for
financial reasons have dispensed with medical
services.

The medical profession has shown an increas-
ing interest in Industrial Health. In 1939 a
Council on Industrial Health was established by
the American Medical Association, and a num-
ber of state medical associations, including Min-
nesota, have established Committees on Industrial
Health and Occupational Diseases. For over a
year our state committee has been publishing in
the journal each month a page on various sub-
jects related to Industrial Health.

In this number of MINNESOTA MEDICINE the
subject of Industrial Health is being featured.
The six addresses on the subject which were
presented at the last meeting of the State Med-
ical Association appear in this issue.

With the speed-up of industry incident to the
war, the importance of reducing the loss of man-
hours due to accident and sickness becomes of
vital importance. It is said that this loss in war
production amounts to 6,000,000 work days each
month.

Plans for cutting down this enormous loss in
the war effort require not only the services of
medical men but the coöperation of engineers,
sanitary experts, health and police departments.
Activities include the prevention of accidents
within and around industrial plants, supervision
of health conditions in the homes of the workers
as well as the medical care of those suffering
from accidents and sickness. The employment of
untrained workers and the mushroom growth of
new communities provide additional problems for
preventive medicine, public health and social hy-
giene.

One attempting to interest himself in the sub-
ject of Industrial Health is likely to be left in

a daze because of the many ramifications of the subject. State and county medical societies should, however, interest themselves to the extent at least of instituting Committees on Industrial Health which should be composed of representatives from private practice, industrial practice, the local health department and the local medical society.

In order that steps may be taken to correct unhealthful conditions in industrial plants, health officers must know what conditions need correction. Practitioners must be relied upon to report occupational diseases encountered in their practices. Many months ago forms were sent physicians for the reporting of occupational diseases. The response has been disappointing. It is possible that physicians hesitate to report information of this sort on the grounds that this would constitute a betrayal of confidence. This information is to be used, however, only for statistical purposes and scientific study. No information so obtained may be used under the law in any court. Physicians are urged to comply with the law and report all occupational diseases promptly to the Division of Industrial Health, State Department of Health, University Campus, Minneapolis.

THE PHYSICIAN AND INDUSTRIAL HEALTH

THE problems of industrial hygiene may be attacked from two angles: (1) the hygiene of the individual, and (2) the hygiene of the environment in which he works and lives. The first problem is a proper function of the medical sciences, while the working environment has to do largely with engineering practices. It is the province of the medical profession to diagnose diseases and primarily to recognize the existence of such diseases as may be due to the working environment. Based on the conclusions of the physician, the engineer learns what unhealthful conditions should be investigated and what control measures are to be initiated. It is essential, therefore, that the various professions understand clearly the functions of each and approach the solution of the problems of industrial hygiene as a joint effort and coöperate with one another to the fullest extent.

The medical problem may best be approached by grouping physicians in industry into full-time industrial physicians and part-time and

on-call physicians. Approximately 85 per cent of workers are employed in small plants in which there are no organized medical services. Services to these industries are supplied by private practitioners including specialists in various fields, some of whom have made important contributions to industrial medicine. The medical departments of large industrial plants serve as models of efficiency and have demonstrated their work. The problem confronted by these departments in large industries in the present emergency is largely one of expansion of existing facilities. The fact that medical service to 85 per cent of our workers is predominantly in the hands of private physicians presents an important problem of coördination of effort. In large industries the relatively few full-time men who are specialists in industrial medicine have engaged chiefly in measures for the prevention of occupational disease and the promotion of health. Opportunities of a like nature and probably on a larger scale exist in small manufacturing establishments and are available to physicians who render services to these plants. These practitioners have, in the past, limited their industrial activities largely to the treatment of occupational injuries and diseases and have failed to a considerable degree to see the opportunities afforded by industrial hygiene.

Since its organization in 1939 the Council on Industrial Health of the American Medical Association has been active in stimulating the contributions which the physician, individually and through medical organizations, can make to the industrial workers. It has also stimulated the formation of committees on industrial hygiene in state and county medical organizations and has clearly outlined a program which can be adopted by the state and local societies. Among the objectives of this program are: (1) the training of physicians to recognize and report occupational diseases; (2) the training of industry and labor to the value of industrial health conservation; (3) the elevation of medical relations and standards in workmen's compensation; (4) a scrutiny of all social legislation affecting industrial health; (5) a clarification of relationships between industrial and private practitioners; (6) the improvement of relations between physicians and insurance; and (7) the establishment of working relations with all state agencies interested in industrial health. The need for coöperation be-

tween all interested agencies, both official and voluntary, is plain. The private practitioner, either as an individual or through the state or local medical organizations, should utilize to the fullest extent the services which may be rendered by official agencies in the field. In order to accomplish their objectives, public health workers in industry and in the various government services must make a genuine effort to aid in the development of industrial health services through the agencies of organization of the private physician. No program of a public health nature can be carried to its logical conclusion without such coördinated effort. In the past there has too often been obvious failure to effect such coöperation. This failure must be recognized and surmounted if the best interests of the industrial worker are to be served.

STANLEY J. SEEGER, M.D., *Chairman,*
Council on Industrial Health,
American Medical Association.

PRE-ELECTION ACTIVITIES OF THE N.P.C.

THE National Physicians Committee, as all physicians should know, is the organization of physicians throughout the country interested to the extent of five or ten dollars a year, or a little publicity effort or both, in the future of medical practice in our country. The members of this organization appreciate the high grade of medical care furnished in our country compared with other countries, favor continued trial of methods aimed to relieve the unequal distribution of costs of sickness, but are opposed to the government's taking over the practice of medicine.

The function of the National Physicians Committee since its organization three years ago has been primarily publicity—to acquaint the public with the achievement of American medicine and to emphasize the desirability of maintaining the practice of medicine in America as a private and not a governmental activity. This Committee transmits from its headquarters in Chicago stories which preach sound medicine to over 12,000 newspapers throughout the country. Definite results of this publicity are intangible, but its policy is sound. Last July the Committee obtained the services of about 2,000 of its members in forty-eight states to sound out some 800 candidates for Congress on their attitudes

towards questions of importance to physicians. The questions put to them were:

1. Do you favor exempting the professions from the provisions of the anti-trust laws?
2. Do you favor the enactment of legislation which will provide for physicians as a professional group a definite status and the obligation to maintain standards designed to protect the public in matters pertaining to health?
3. Do you favor payroll tax deductions—Federal Compulsory Insurance—to provide for hospital and/or medical care costs in the United States?
4. Do you favor entrusting to the medical profession the responsibility for preserving, extending and further improving our system of medical service in the United States?
5. Do you favor any restrictions or limitations on the choice of physician by any individual seeking the services of a doctor?

The purpose of the contact of these candidates was to acquaint them with Medicine's point of view concerning Compulsory Health Insurance and other medical and health issues and to explain the nature and meaning of the Federal Court decision branding all physicians criminals and calling their attention to the need for new legislation exempting the profession from the provisions of the Sherman Anti-Trust Laws.

More than 100 of the candidates signed the questionnaires and added supplementary comment. The successful candidates at least know the viewpoint of physicians. From the replies received it is estimated that more than 300 out of 435 Congressmen have pledged themselves:

- To preserve the professional status for physicians
- As unalterably opposed to compulsory health insurance
- To avoid—at any cost—the sacrificing of the sacred doctor-patient relationship

This preëlection request by the Physicians Committee as to the stand on medical matters of each candidate for Congress is a new venture. This political effort is much like the system used in Minnesota. The aim is to reach every congressman through a physician in his home community when adverse legislation is pending in Washington. While a candidate's stand on medical legislature is not the entire consideration to be taken into account as to his qualifications for Congress, yet between two candidates both equally patriotic regarding the conduct of the war and the one opposed to and the other in

favor of the government taking over medical practice, it is well to be informed.

The N. P. C. has issued its call for support of the physicians of America.

Minnesota's record in support of the National Physicians Committee is enviable. Last year Minnesota physicians contributed more money to the Committee than those from any other state. This year we are far behind our last year's record in support of this movement which deserves the united effort of all medical men. In spite of the many demands for financial support the N. P. C. deserves continued support.

OUR LADY OF GOOD COUNSEL FREE CANCER HOME

REV. JAMES L. CONNOLLY

Saint Paul, Minnesota

On December 8, 1941, a home was opened in Saint Paul for the benefit of poor people, victims of cancer. It aims to provide care for the afflicted without consideration of race, or color, or creed. In the brief period that the doors of the home have been opened it has given hospitality to more than ninety patients, representative of the various nationalities and faiths of people in the Northwest. The services of the home are free. No remuneration or compensation is accepted by those in charge for the care they give their patients.

The name of the home is: Our Lady of Good Counsel Free Cancer Home. It is located at the corner of Cleveland and St. Anthony Avenues, in Saint Paul, easily accessible by bus and trolley from all points of the Twin Cities. A group of sisters carry on the work of the home. They are of the Catholic faith and wear the religious habit of the Dominican Order. Their community is called: *Servants of Relief for Incurable Cancer*. As the name signifies, they are dedicated especially to shelter and care for people whose malignancy is considered not subject to remedy and who happen to be indigent in the sense that they could not meet normal hospital expenses. At the home, the sisters do all the nursing. They do the laundering and the cooking besides.

The accommodations of the home are for sixty-seven patients. However, there is room sufficient to permit an expansion to house as many as one hundred sick. The home is arranged attractively with two large, bright, high-ceilinged wards on each floor. Pictures, plants, and flowers are used effectively to provide a cheerful atmosphere. Each ward is serviced from a utility-room which is well provided with all necessary accessories. While the facilities of the home do not allow for surgery or x-ray treatments, most of the means necessary to assure the comfort of the patients and adjust them to the character of their illness are secured. There is a well-stocked pharmacy. The build-

ing and grounds afford ample space for the use of ambulatory patients, and there are two large parlors for the reception of visitors. A physician is in attendance and subject to call.

It is interesting to note that this work on behalf of the cancerous poor, while new to the Northwest, has been known on the Eastern seaboard for almost fifty years. The youngest daughter of Nathaniel Hawthorne began it quietly and unostentatiously in a small apartment which she rented on the East Side in New York. Prominent as a poet and writer, known to society with her husband as a popular member of the younger set, Rose Hawthorne Lathrop had her father's interest in the poor and afflicted. She felt a sense of personal responsibility for them. And when she became aware through the sickness of a dear friend, Emma Lazarus (herself a poet of renown), of the mental as well as the physical discomforts that accompany cancer, she felt herself impelled to give her time and devotion to ministering to the needs of poor people whose suffering was accentuated by neglect. Even while her husband was living, she followed a course of nursing in the New York Cancer Hospital, and set up a service of house-to-house nursing. After the death of her husband in 1898, she gave all her thought to this work, and enlisted the sympathies and aid of her many friends. In a short space of time, her East Side apartment grew to become a nursing home where twenty or more patients of both sexes could be cared for and her efforts were supported by those of other young women who were drawn by the force of her example to help in the work. One of her first recruits was a young woman, a portrait painter, who came to New York to study art. Alice Huber had a letter of introduction to Mrs. Lathrop. It was supposed to open the door to New York society. She brought the letter to Mrs. Lathrop in her East Side dingy home, timidly offered to help, and within a few months time gave up all thought of a career in art and took up instead the tasks of nursing poor bodies that she found beautiful even amid the waste and the sores of their affliction.

Such a work of kindness could not go unnoticed. People commented on it. Physicians coöperated with it. Men of means contributed towards maintaining it. And it was not long before, with increasing demands and growing resources, a new home was set up in Westchester County. There on high hills overlooking the Hudson was founded in 1901 a home that is an emphatic manifestation of the fundamental goodness of humankind.

In this same year, 1901, Mrs. Lathrop obtained the approbation by church authorities of her work. She became the foundress and first superior of a religious community whose chief object was to provide free care for poor people afflicted with cancer. To foster her ideals and to acquaint others with the work being done, Mother Alphonsa Lathrop, as she was called in religion, issued a monthly publication, entitled: *Christ's Poor*. In it she sketched the story of her labor of love, recounted many little anecdotes of happenings in the two free homes that she had established, listed the needs and acknowledged the benefactions received. It

is worth recording that Mark Twain volunteered his aid saying, in part, in a letter to Mother Alphonsa:

"I have known about this lofty work of yours since long ago—indeed from the day you began it; I have known of its steady growth and progress step by step to its present generous development and assured position among those benefactions to which the reverent homage of all creeds and colors is due; and I am glad in the prosperous issue of your work, and glad to know that this prosperity will continue and be permanent—a thing which I do know, for that endowment is banked where it cannot fail until pity fails in the hearts of men. And that will never be" (Oct. 19, 1901).

Mark Twain was accurate in his estimate of human pity. The work has not failed. It has grown to consist now of six homes in which upwards of seventy sisters care for in the neighborhood of a thousand cancerous patients a year. The Saint Paul home is the sixth one established. The other Homes are: St. Rose's Home, New York City; Rosary Hill Home, Hawthorne, N. Y.; Sacred Heart Home, Philadelphia; Rose Hawthorne Lathrop Home, Fall River, Mass.; Our Lady of Perpetual Help Home, Atlanta, Ga. Each of these foundations is practically debt free. When the Saint Paul Home was opened it had but little debt, and all the monies for the purchase of the property and the preparation of the home were borne by the community that was to do the work. Since the establishment of the Home in Saint Paul, there has been no public solicitation of funds. Nor will there be. The Home does not look to support from the Community Chest or any organized charity. It takes nothing in the way of remuneration from the families of the sick cared for. Support has been of a voluntary, unsolicited nature, and it has not been slow in coming. Various organizations of women have volunteered their aid in preparing bandages and dressings for use at the Home.

For the information of physicians who might be interested in directing patients to accept the hospitality of Our Lady of Good Counsel Free Home, the following points are stressed:

1. Any poor person, afflicted with cancer that is considered irremedial can be entered into the Home on recommendation of physician or clergyman.

2. There is no limitation of acceptability based on religious or racial grounds. The Home is conducted by sisters of the Catholic faith. But they welcome the afflicted with cancer of every sect and color. The only limitation indicated, and it is a reasonable one, is that the patient must be certified to be mentally sound. The fact of the Home being organized on a ward basis and the close association of the patients is sufficient warrant for this condition being made.

3. The services of the Home are open to people, regardless of locality. The circumstance that makes for admission is to be poor, afflicted with cancer, and to come with a recommendation from a physician.

4. The Home is a free home. The patient is welcomed to whatever benefits the Home can supply.

5. There are at present about twenty patients in the Home, so the resources are far from being taxed.

In an institution of this kind, the mortality is naturally high. Many defer their application for admission until they are almost at the threshold of death. While the sisters in charge have no intention of refusing patients in such extremity, they are conscious of the fact that to make transfer of a sick person when the end is near often causes fatal hemorrhage. It is part of the purpose of the Home to prepare patients to meet what is beyond with hope and calm. For this reason they have emphasized their willingness to receive cancerous poor people who have a fair expectancy of living on for a time. Often enough, when cancer is diagnosed in the case of a patient who is poor, it will have reached a stage not amenable to resist remedial care. Such cases would be considered as deserving of attention at the hands of the Servants of Relief for Incurable Cancer.

The attention of physicians of the Northwest is invited to the service offered at Our Lady of Good Counsel Free Home. Such an institution in our community cannot but bring to us all a better sense of brotherhood, a finer and more sensitive compassion for the needy and afflicted. Nathaniel Hawthorne often expressed such sentiments in his writings. From his youngest child, his favorite daughter—Rose Hawthorne Lathrop—we have had a forceful expression of the ideal in application. And the home recently established in Saint Paul is a memorial and a continuation of her work.

TUBERCULOSIS ON THE INCREASE

Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, called attention to the threat of an increase in tuberculosis in this country in a series of talks given in the Twin Cities before various groups including the Minnesota Education Association, and the Minnesota Public Health Association at their annual conventions in October. His talks here were a part of the Christmas Seal educational program, preliminary to the opening of the 36th annual Seal Sale.

"When we examine the death rate of the nations at war abroad, we find that the one rate that is steadily rising is tuberculosis," said Dr. Fishbein. "Among the recruits examined by our army in this war the rate for tuberculosis rejection is less than half of what it was in World War I, showing that the nation as a whole has made tremendous advancement in overcoming this disease. This has been brought about by the extensive examinations of great numbers of young boys and girls, using the tuberculin test and the x-ray examinations and giving opportunity for sanatorium treatment and preventorium care to those needing it."

A warning that it will take the greatest effort possible to hold tuberculosis in check in this country is sounded by President Roosevelt in endorsing the Christmas Seal Campaign, President Roosevelt said:

"The unholy alliance between war and disease is particularly powerful in the case of tuberculosis. Tuberculosis has increased in every past war. The disease is increasing alarmingly in many warring European and Asiatic countries.

"In the United States tuberculosis is now at the low-

est rate in our history. But, to hold the disease in check during wartime will demand the greatest effort possible on the part of the people, the medical profession, the tuberculosis associations and the official health departments. Coöperation of all people in the fight against tuberculosis is imperative.

"The tuberculosis associations are well under way in their intensified and expanded wartime campaign. I have full confidence that the American people will generously add the purchase of Christmas Seals, the main support of the National Tuberculosis Association and its seventeen hundred affiliated associations, to their many other wartime activities."

The latest authentic figures on the increase of tuberculosis in certain European countries and Canada compiled by the National Tuberculosis Association have just been released through the Minnesota Public Health Association. They are as follows:

"In England and Wales, between 1939 and 1941, deaths from all forms of tuberculosis increased 12 per cent. This increase is twice as high as that which occurred between 1914 and 1916.

"In Scotland, between 1939 and 1941, all tuberculosis deaths increased 18 per cent.

"In Paris, during the first six months of 1941, tuberculosis deaths increased 10 per cent over the deaths from the disease in the first half of 1939. The number of food ration cards, issued in the fall of 1940, points out a decrease of 14 per cent in the city's population since 1936, thus making the increase in tuberculosis deaths more significant.

"According to the Canadian Tuberculosis Association, the tuberculosis death rate in 1941 increased five per cent over the 1940 rate, the first appreciable increase in deaths from the disease in that country in fifteen years.

"Unconfirmed but frequent reports from Germany emphasize a pronounced recent increase in tuberculosis, diphtheria and scarlet fever, but no detailed reports signed by accredited physicians or statisticians covering vital statistics in Germany for the last few years are available.

"Reports of alarming increases in the disease in China, Greece, The Occupied Low Countries and Poland have been received in this country, but no exact figures are available. No significant reports on tuberculosis have been received from Russia, Italy or Finland."

OBSTETRIC CARE FOR WIVES OF ENLISTED MEN IN MINNESOTA—A CORRECTION

Physicians are notified that funds are not available to the State Board of Health for payment for medical and hospital obstetric and pediatric care needed by the wives and infants of enlisted men in the military services. It is true that, as announced on page 945 of the November issue of MINNESOTA MEDICINE, there was a small Federal appropriation available for this purpose. It is also true that the State Board of Health requested an allotment of these funds for use in Minnesota. However, the United States Children's Bureau recently notified the State Board of Health that the Federal appropriation was exhausted in the first twenty-two States submitting approved plans for the use of the funds. Therefore, the program will not become effective in Minnesota unless the Congress passes a bill now under consideration. This bill, which is known in the Senate as S-2738 and in the House of Representatives

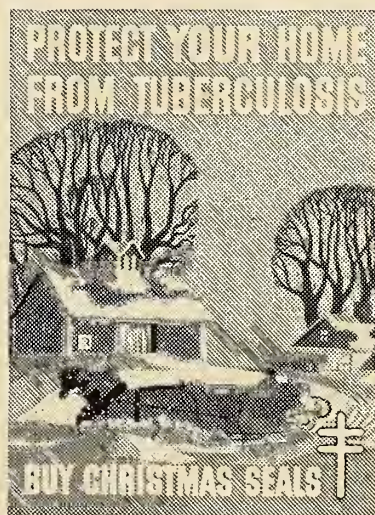
as HR-7503, is intended to provide these needed funds. Physicians are referred to page 47 of the September 5, 1942, issue of the *Journal of the American Medical Association* for detailed information on this bill.

In replying to the State Board of Health request for these funds, the United States Children's Bureau disapproved the Minnesota plan for administering the funds because it required investigation of financial need for assistance. The United States Children's Bureau regards this program as a replacement of a governmental service ordinarily provided by the Army and Navy in peacetime but impossible of maintenance during the war. This new aspect of the program, which was not made clear at the time it was originally presented in Minnesota, provides that the patient and the physician make joint application for payment for necessary medical and hospital services. Under this plan the primary responsibility for decision as to who shall receive the benefit of the funds will rest with the physician.

This new aspect of the program is being studied by the special committee appointed by the Council of the Minnesota State Medical Association. The recommendations of this committee will be presented to the Council at the first opportunity so that Minnesota may be prepared to act promptly in the event the bill before Congress is passed and the Federal funds become available.

In the meantime, physicians are advised to refer patients in need of assistance to County Welfare Boards and to local Red Cross Chapters.

EDITOR'S NOTE: The above statement by Dr. Viktor O. Wilson, Director of the Division of Child Hygiene of the Minnesota Department of Health, presents the present status of Federal provision for obstetrical care for the wives of enlisted men as applied to Minnesota and corrects the statement made on page 945 of the November number of MINNESOTA MEDICINE to the effect that funds were at present available in Minnesota for this purpose.



MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

Minnesota State Medical Association
George Earl, M.D., Chairman

CONFERENCE ACTS TO PROTECT MEDICAL LICENSURE

Representatives of six state medical associations in this area met in Saint Paul, November 8, and agreed by formal resolution that "under no circumstances should existing standards for medical licensure be lowered."

This important action came as a result of suggestions arising out of the war emergency that licensure requirements in the states be relaxed and that, for the period of the war, men whose training and background does not measure up to current standards, should be licensed to practice in the place of men who have gone into the armed services.

The conferees rejected this suggestion on two accounts, first, because lowering standards will gravely lower the quality of medical service now and in the future and destroy, out-of-hand, accomplishments that have taken fifty years to build; second, because reports from all six states represented revealed no acute shortage of physicians in this region.

Adopts Name

The conference which took this important action formally constituted itself as the "North Central Medical Conference" at this meeting and agreed to meet at least annually, oftener at call, in Saint Paul.

The occasion marked a revival of the old Northwest Regional Conference which lost its character as a conference of this region and became, eventually, The National Conference on Medical Service which now meets annually in Chicago.

Membership Limited

States to be represented in the new association will be limited to Minnesota, Iowa, Wisconsin, North Dakota, South Dakota and Nebraska. Dr. W. L. Burnap of Fergus Falls act-

ed as chairman of the first conference. Officers for next year will be Dr. R. G. Arveson of Fred-
eric, Wisconsin, President, and Mr. R. R. Ros-
sell, Executive Secretary of the Minnesota State
Medical Association, as Secretary.

Procurement and Assignment has operated ef-
fectively in all six states, these reports revealed,
to retain essential men and to avoid stripping any
community of all medical service. Plans for fu-
ture recruiting have been carefully made and
sources of additional medical officers have been
located from communities where they can still be
spared.

Closer Contact Needed

Representatives generally expressed awareness
of the wartime danger of hasty social legislation
in Washington. Radical expansions of the so-
cial security laws and precipitate reorganizations
of the public health service already threaten in
the name of the emergency. All voiced a need
for closer contact with Congress and the federal
agencies so as to be informed quickly upon pro-
posals which might seriously affect medicine.

In many cases, such proposals are not legisla-
tive at all. They are regulations coming out of
the Washington bureaus, regulations which
might readily be altered for the better protection
of the sick if information about them were avail-
able while they were in the making.

Story Would Be Different

There is, for instance, the regulation which
calls for everybody, including physicians, to turn
in all but five tires, including the extra pair of
snow tires which nearly all medical men who
must drive in all kinds of weather and roads pos-
sess, or use them in place of the two regular tires
for the period of their usefulness. Much effort
has been expended to secure a relaxation of that
ruling for physicians but so far without avail.
If it had been possible to present the case to the
Office of Price Administration before, not after,

the regulation had been made, the story would have unquestionably been different.

There is also the regulation requiring a physician's prescription for the purchase of ordinary rubbing alcohol which might have been avoided, perhaps, if the effect had been explained in advance to Washington rationers. The good to be secured from this sort of prohibition is small, at best, and the penalty exacted in terms of the hard-pressed physicians' time is wholly out of proportion. One of the best ways to meet the so-called doctor shortage is surely to conserve the time of the practitioner at home so that nothing nonessential will keep him from serving his people.

Committee Appointed

The question of how the Washington situation is to be met was discussed from many points of view and the Conference eventually decided, by resolution, to appoint a committee which will "facilitate and coördinate the opinions expressed concerning legislative and other matters in Washington." On this Committee are Drs. J. D. McCarthy of Nebraska, R. E. Bernard of Iowa, L. W. Larson of North Dakota, C. A. Dawson of Wisconsin, C. E. Sherwood of South Dakota, and A. W. Adson of Minnesota.

PREPAYMENT PLANS DISCUSSED

Procurement and Assignment and the much head-lined shortage of doctors occupied the major part of the time of medical secretaries who attended the annual Secretaries' Conference in Chicago in November.

Medical Service plans highlighted the second day's program, however, and here, with reports before them from many parts of the country, the secretaries were impressed again with the fact that no plan anywhere has yet proved itself to be the answer to the cost problems of medicine.

Massachusetts has now joined the list of states, including New York, Pennsylvania, Michigan, California and others who have embarked upon pre-payment or indemnity plans sponsored by medical societies.

These societies are undoubtedly piling up invaluable experience out of which some day may develop workable plans for insurance against costs of medical care.

Partial Coverage Preferred

So far, however, not one of them can be said to have achieved an unqualified success, either

from the standpoint of the public or the physicians. Full coverage for all medical needs was especially revealed to be almost everywhere unsuccessful. It runs afoul of the old hurdle—if premiums are low enough to be attractive to the public, they are not high enough to be financially sound.

Partial coverage, for surgical services only, is now regarded by nearly all as preferable. Lower premiums are possible with this coverage and control is simpler.

Enabling Act Necessary

It was pointed out, with emphasis, to all states and societies who contemplate such plans, that special enabling acts are essential. This is insurance, even though of the nonprofit type, and physicians, themselves, must assume no responsibility not clearly protected by law.

They must also make very certain that no plan for any type of coverage is made which links or submerges the doctor with the hospital in management or organization. Experience has made it very clear that any plan for medical care must be run by the physicians as a sponsoring organization and furthermore, actual administration of the plan must be in the hands of a physician.

In any case, nothing came out of the Chicago Conference which would warrant any immediate change in the watchful waiting policy established by the Minnesota State Medical Association with regard to sickness insurance plans in Minnesota.

The need for experimentation is not acute in Minnesota and the penalty might well be loss of funds and prestige that would greatly impede future constructive action by the Association.

THOSE PERSUASIVE BRITISHERS

English physicians are talking about extensive expansions of their National Health Insurance System after the war.

The report of a commission appointed by the British Medical Association on postwar planning, published in the current issue of *Medical Care*, looks forward to a "comprehensive national health policy" which will correct the haphazard distribution of functions among national and local governments and add consultant, specialist and hospital services to insurance benefits. If the report is adopted, it will extend benefits to an estimated 90 per cent of the population.

Articles by Viscount Dawson of Penn and Sir Frederick Menzies, Chief Medical Officer of the

London County Council, are reprinted with the report in this issue to show what prominent British medical men are thinking about in connection with medical services of the future in Britain. These men are writing for Britain about British conditions but their persuasiveness makes especially apt the warning by the late Dr. S. S. Goldwater of New York on the possible effect of these English reports upon American readers.

Said Dr. Goldwater:

"What I have to say is not really a criticism but a friendly admonition that the Editor of *Medical Care* should not permit himself to fall victim to the charm of British essayists. Great Britain is fortunate in having so many distinguished members of the medical profession giving heed to medical-economic problems, but I have yet to meet a Britisher, however distinguished, however charming personally, however cultivated in science and the arts, and however masterly a writer, who is competent to write a medical ticket for the United States.

"I think we would do well to emulate the studious attitude and polished style of the English medical economic essayists while carefully avoiding any attempt to fit their highly specialized formulæ to our different proportions and conditions."

NO QUININE

Among the wartime shortages discussed in Chicago was the lack of quinine. The situation has become very serious as everybody who has read the story of Bataan and Corregidor knows. The result in terms of supplies at home is that no quinine may be prescribed at all except as an anti-malarial agent or in combination with urea-hydrochloride. Pharmacists have been required to turn in their supplies of quinine regardless of age, quantity or nature. They have been permitted to retain only enough quinine sulphate of hydrochloride to meet current needs. Physicians are urged to keep this fact in mind and manage without it.

NOT A LAW

By error, the bill known as the Tolan Bill, committing chiropractors to treat injured federal employees under the United States Compensation Act, was referred to in this section of the November issue of MINNESOTA MEDICINE as a law, whereas the bill has not yet passed the House of Representatives, so it has been reported favorably out of committee. A comparable bill committing the Army Medical Corps to appoint osteopaths to internships in Army hospitals did become law at the last session, however, and both are examples of the need for watchfulness in Washington.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Physicians Licensed July 10, 1942

By Examination

- Albrecht, H. H., Marquette U., M.D. 1942, Floodwood, Minn.
 Andersen, Howard Arne, U. of Minn., M.B. 1942, 3904 13th Ave. S., Minneapolis, Minn.
 Anderson, William Hodgson, U. of Minn., M.B. 1941; M.D. 1942, Box No. 110, Alexandria, Minn.
 Bacon, Warren Wright, Coll. Med. Evang., M.D. 1942, N.P.B.A. Hospital, Saint Paul, Minn.
 Baker, Charles Edward, Northwestern, M.B. 1941; M.D. 1942, Fergus Falls, Minn.
 Barton, Robert Linhart, U. of Mich., M.D. 1938, Mayo Clinic, Rochester, Minn.
 Bellville, Titus Philemon, Marquette U., M.D. 1941, 924 Essex S. E., Minneapolis, Minn.
 Bentson, James Hoffman, U. of Minn., M.B. 1942, Ancker Hospital, Saint Paul, Minn.
 Bergan, Robert Otto, U. of Minn., M.B. 1942, Minneapolis General Hospital, Minneapolis, Minn.
 Bixler, Louis Clifford, Indiana U., M.D. 1937, University Hospitals, Minneapolis, Minn.
 Ceder, Elmer Theodore, U. of Minn., M.B. 1929; M.D. 1930, Mayo Clinic, Rochester, Minn.
 Chalmers, James Hugh, U. of Minn., M.B. 1941; M.D. 1942, J. C. Medical Center, Jersey City, N. J.
 Colton, Warren Alfred, Jr., U. of Minn., M.B. 1941; M.D. 1942, U. S. Veterans Adm., Kecoughtan, Va.
 Cress, Paul Cronan, U. of Minn., M.B. 1942, Ellsworth, Minn.
 Duerr, Eleanor Elizabeth, U. of Minn., M.B. 1942, Minneapolis General Hospital, Minneapolis, Minn.
 Dwinell, Leonard Anthony, Northwestern U., M.B. 1941; M.D. 1942, 569 Portland Ave., Saint Paul, Minn.
 Evensta, John Berg, Geo. Wash. U., M.D. 1941, Minneapolis General Hospital, Minneapolis, Minn.
 Ferguson, Donald John, U. of Minn., M.B. 1942, 4912 Penn Ave. S., Minneapolis, Minn.
 Gilbert, Jarvey, U. of Minn., M.B. 1942, Fresno County Hospital, Fresno, Cal.
 Graham, Robert Judson, Northwestern U., M.B. 1940; M.D. 1941, Mayo Clinic, Rochester, Minn.
 Greenberg, Albert Joseph, U. of Minn., M.B. 1942, 1329 Lincoln Ave., Saint Paul, Minn.
 Hagen, Kristofer, U. of Minn., M.B. 1942, Wm. J. Seymour Hospital, Eloise, Mich.
 Hall, Betty Julia, U. of Minn., M.B. 1940; M.D. 1941, 515 Queen Ave N., Minneapolis, Minn.
 Hallin, Roger Paul, U. of Minn., M.B. 1942, 3611 Cedar Ave. S., Minneapolis, Minn.
 Hayford, William D., U. of Minn., M.B. 1942, Wesley Mem. Hospital, Chicago, Ill.
 Hill, Earl, U. of Minn., M.B. 1942, 1800 Vincent Ave. N., Minneapolis, Minn.
 Jack, Laurine Davison, U. of Minn., M.B. 1942, Shreveport Charity Hospital, Shreveport, La.
 Johnson, Tennyson Gates, U. of Minn., M.B. 1942, 1326 St. Antoine St., Detroit, Mich.
 Kirkeeng, Melvin J., U. of Minn., M.B. 1942, Orange County General Hospital, Orange, Cal.
 Lueck, Wallace Wilson, U. of Minn., M.B. 1942, Wayne County Hospital, Eloise, Mich.
 Lund, J. Benjamin, U. of Minn., M.B. 1942, Emanuel Hospital, Portland, Ore.
 Macaulay, Warren Lowell, U. of Minn., M.B. 1942, San Bernardino County, Charity Hospital, San Bernardino, Cal.
 Mann, Frank Daniels, U. of Minn., M.B. 1942, Strong Mem. Hospital, Rochester, N. Y.

Marr, George Edward, U. of Louisville, M.D. 1936, Mayo Clinic, Rochester, Minn.

Martinson, Elmer James, Coll. Med. Evang., M.D. 1942, Wayzata, Minn.

McCormick, Donald Phillip, U. of Minn., M.B. 1941, Minneapolis General Hospital, Minneapolis, Minn.

McEvoy, Joseph Peter, U. of Minn., M.B. 1942, Ancker Hospital, Saint Paul, Minn.

Montgomery, George Edmond, Jr., U. of Minn., M.B. 1941; M.D. 1942, Mayo Clinic, Rochester, Minn.

Murray, Nelson Arnold, Tulane U., M.D. 1939, Mayo Clinic, Rochester, Minn.

Mussey, Robert Delevan, U. of Minn., M. B. 1942, Cincinnati General Hospital, Cincinnati, Ohio.

Olson, Burton G., U. of Minn., M.B. 1942, Orange County Hospital, Orange, Cal.

Patterson, Robert Bruce, U. of Minn., M.B. 1942, St. Mary's Hospital, Duluth, Minn.

Perkins, Marsh Olin, U. of Minn., M.B. 1941; M.D. 1942, 2190 Sargent Ave., Saint Paul, Minn.

Peterson, Willard Everett, U. of Minn., M.B. 1942, 3245 1st. Ave. S., Minneapolis, Minn.

Posch, Joseph Louis, U. of Minn., M.B. 1942, Detroit Receiving Hospital, Detroit, Mich.

Poirier, Ralph Alexander, U. of St. Louis, M.D. 1942, Detroit Mount Carmel, Mercy Hospital, Detroit, Mich.

Preston, Lewis Frederick, Baylor U., M.D. 1939, Mayo Clinic, Rochester, Minn.

Ralph, James Robert, Marquette U., M.D. 1942, 617 Portland Ave., Saint Paul, Minn.

Ryan, Bernard F., U. of Oregon, M.D. 1936, Mayo Clinic, Rochester, Minn.

Schneider, Robert Arnold, U. of Minn., M.B. 1942, Minneapolis General Hospital, Minneapolis, Minn.

Serner, John Joseph, St. Louis U., M.D. 1942, 171 S. Lexington Pkwy., Saint Paul, Minn.

Stowe, Lyman Maynard, Yale U., M.D. 1938, University Hospitals, Minneapolis, Minn.

Taylor, Gerald Joseph, U. of Minn., M.B. 1941; M.D. 1942, 910 8th Ave. N., St. James, Minn.

Turner, James Lynn, Northwestern U., M.B. 1940; M.D. 1941, Mayo Clinic, Rochester, Minn.

Van Gordon, Donald James, U. of Minn., M.B. 1942, 1024 A. St., Crookston, Minn.

Van Rooy, George Tardiff, U. of Minn., M.B. 1941; M.D. 1942, 4213 Sheridan Ave. S., Minneapolis, Minn.

Walker, George Lewis, U. of Minn., M.B. 1941, 635 W. Broadway, Winona, Minn.

Wallace, George Thomas, Rush Med. Coll., M.D. 1938, Mayo Clinic, Rochester, Minn.

Watkins, Dale Baxter, U. of Minn., M.B. 1942, St. Luke's Hospital, Duluth, Minn.

Wert, Alvin DuBois, U. of Rochester, M.D. 1941, Minneapolis General Hospital, Minneapolis, Minn.

By Reciprocity

Hawley, Geo. Maxwell Blackstock, II., Johns Hopkins U., M.D. 1940, Northern Pump Co., Fridley, Minn.

Nester, Hansford Dorsey, U. of Maryland, M.D. 1936, Mayo Clinic, Rochester, Minn.

Spearing, John Henry, Jr., U. of Chicago, M.D. 1938, Gopher Ordnance Co., Rosemount, Minn.

National Board Credentials

Rogers, Howard Milton, U. of Pittsburgh, M.D. 1935, Mayo Clinic, Rochester, Minn.

Wass, Harold E., U. of Buffalo, M.D. 1938, 1039 Lowry Med. Arts Bldg., Saint Paul, Minn.

NEW TEST IMPROVES OPERATION FOR SCIATICA

A new test that tells more exactly the spot for operation on the back in cases of sciatica and low back pain is reported by Dr. Walter E. Dandy, of Johns Hopkins Hospital (*Jour. AMA*, Oct. 24).

In almost all cases of sciatica with low backache, Dr. Dandy points out, the trouble is due to rupture or defect of an intervertebral disk, the layer of fibro-cartilage between the bodies of the vertebrae. Treatment by operation is "absolutely safe and a cure is practically assured," he states.

The diagnosis, he believes, can be made solely on the patient's story of attacks of sciatica and low backache occurring after a relatively trivial injury, such as a lift, bend or strain, with the pain made worse during attacks by coughing or sneezing. In almost all cases the affected disks are at the fourth or fifth lumbar vertebra.

In order to determine the location more precisely, Dr. Dandy says that during the operation the surgeon should push the spines of the fourth and fifth spinous processes downward and determine the mobility of each vertebra. The affected disk will be where the greater movement is shown because the defective disk has weakened the spinal column locally and this causes the mobility.

This free play at the disk is responsible for the intensification of the pain by coughing or sneezing and if the patient can stiffen his back before the cough or sneeze, the pain will be ameliorated.—*Science News Letter*, November 28, 1942.

BALKAN PLANT GIVES MORE EFFECTIVE DRUG

A crystalline substance from a Balkan digitalis plant, or foxglove, has proved more effective in treating heart disease than the digitalis in common use, Dr. Francis E. Chamberlain and Dr. Maurice Sokolow, of the University of California Hospital, report.

The substance is called cedilanid and is found only in *Digitalis lanata*. Terming it the "first superior substitute for digitalis yet to be found," the California physicians say that it produces the same effect as digitalis and acts more rapidly. In many cases, they report, patients were benefited within ten to twenty minutes after being given cedilanid. It may be given by mouth or by injection into a vein. Their report states that this drug is now on the market and readily available to physicians.—*Science News Letter*, November 28, 1942.

TUBERCULOSIS IN WARTIME

Control of tuberculosis under conditions of war challenges all available resources. The medical history of World War I reveals to us how mortality rates for tuberculosis increased greatly during the war and some years thereafter, especially in Europe. The massing of armed forces for training purposes, mixing individuals from areas of high tuberculosis prevalence with those from areas relatively free of the disease, confronts the military establishment as one problem in tuberculosis control. The concentration of families of industrial workers in defense and cantonment areas, under unhygienic living conditions where sanitation is limited or absent, presents another terrific public health problem. Unless national efforts are directed towards combating these specific factors in the tuberculosis problem, we may well expect an upward trend rather soon in the tuberculosis mortality curve for the United States which has had a beautiful downward trend from 114 per 100,000 per year in 1920 to 45.9 in 1940.—HERMAN E. HILLEBOE, P. A. Surgeon-in-charge, Tuberculosis Control, States Relations Division, United States Public Health Service.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

J. L. McLeod, Grand Rapids, Chairman

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L. S. Arling, Minneapolis
G. L. Berdez, Duluth
F. J. Elias, Duluth

L. W. Foker, Minneapolis
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L. G. Rigler, Minneapolis
E. E. Scott, Saint Paul

S. E. Sweitzer, Minneapolis
D. D. Turnacli, Minneapolis
A. E. Wilcox, Minneapolis
H. G. Wood, Rochester

PHYSICAL EXAMINATIONS IN EMPLOYMENT

Physical examinations for employment are of considerable value in industry. Often these examinations must be done quickly, but with care and accurate observations. The clothing is all removed and a record is made of age, weight, height, race and all abnormalities for a future reference.

Some unions, to my knowledge, allow the employer, at his own discretion, to discharge a new workman during the initial fifteen-day period, but thereafter an employe's priority is established and he must not be discharged without the consent of the union. In other words, a man once accepted might be retained indefinitely. Countless controversies arise from injuries associated with or superimposed upon previous ailments. In observing and examining the man, it is therefore well to reject the potential risk.

Previous Injuries Noted

On examination of the head and neck we notice among other things previous injuries. The eyes should be carefully checked. It has so happened, but rarely that an individual has claimed full compensation for the loss of partial eyesight whereas the original vision was not normal. People with poor vision or one sightless eye are added risks, as are men with defective hearing. The teeth, if infected, may be a hazard—for example, one person with a supposedly injured back was paid compensation. The removal of an abscessed tooth with prompt recovery resulted in the discovery of a wrong history. The chest should be observed for empyema scars and the sequelae. Breathing is also noted. In the heart examination we are particularly watchful for the diseased heart and rapid pulse, the extreme hypertension and valvular diseases. Wassermann tests are desirable. Reflexes often give important clues. It is known, arthritic hearts at times terminate in bacterial endocarditis and if associated with an injury would cause considerable litigation. We

have had three cases of bacterial endocarditis complicating injuries. One patient recovered through the use of sulfadiazine. Once a heart case is employed you usually place them at work as best possible. To create harmony for all, in our plant at present, we have been obliged to place at work two old employes, one an extreme hypertensive heart case and another individual who has a very rapid pulse with an associated heart involvement. They are given light jobs, but are decided risks at the best. In considering the circulatory system we also feel people with advanced varicosities and ulcers should be rejected. These workers have caused us considerable trouble.

The abdomen is observed for long scars and associated incisional hernias. A short history may or may not reveal an ulcer ailment. We have had three workers with no particular previous history, perforate their duodenal ulcers at work. They all recovered from surgery, but one maintained an injury caused it. The urine examination, of course, is of value.

In examining for hernias, a careful palpation is done. Markings for a truss may warn you of a healed hernia from injection treatment. It is our opinion these injections hold for only a reasonable time. We have encountered in industry strangulated ventral, intra-abdominal, femoral and inguinal hernias. They are all likely compensable.

In respect to the genital system we reject acute gonorrhea and undescended testicles. They are definite hazards. One undescended testicle in our plant terminated in sarcoma. Hydroceles and varicoceles are rejected if severe, otherwise accepted for work. The muscular system is observed for atrophies, pain or restricted motion. Many times we notice sore backs by having the individual touch the floor with both hands. We also believe the long slender back or the extremely short stubby one is more prone to injury on heavy lifting. The glandular system is palpated

(Continued on Page 1014)

In Memoriam

FRANK CLINTON ANDRUS

Dr. Frank Andrus died of coronary thrombosis on November 14, 1942. His death was an unexpected blow to his family and friends since he was only thirty-five years of age and was just entering upon a brilliant career in pathology.

Dr. Andrus received his M.B. degree from the University of Minnesota in June, 1932, and his M.D. degree in June, 1933, after an internship at the Minneapolis General Hospital. He then spent one year as a Fellow in Medicine at the Minneapolis General Hospital and the subsequent three years as a Fellow in Pathology at the University of Minnesota. In July, 1937, he was appointed Senior Instructor in Pathology at Ohio State University. In April, 1938, he was appointed director of the laboratory of the Springfield City Hospital but retained his connection with the Department of Pathology at Ohio State University. In September, 1939, he was made director of the laboratory of the Minneapolis General Hospital, and was given the rank of Assistant Professor in the Department of Pathology at the University of Minnesota.

On September 3, 1942, he joined the Army with the rank of Captain in the Medical Corps. He was stationed for a short time at the Army Medical School at Washington, and on October 30 he began his duties as Chief of the Laboratory Section at the Percy Jones General Hospital at Battle Creek, Michigan.

Dr. Andrus was highly regarded by his friends and associates. His training in internal medicine made him especially valuable as a consultant for his clinical colleagues. His keen intelligence and sense of humor will long be remembered by those who had the privilege of his friendship.

Dr. Andrus is survived by his wife and two young children. The physicians of Minnesota extend to Mrs. Andrus their deep sympathy.

—E. T. BELL.

ELMER JULIUS EKLUND

Dr. Elmer J. Eklund died suddenly at his home in Norwood, Minnesota, November 4, 1942, in his fifty-seventh year, having practiced in that locality for thirty-five years.

He was born in Minneapolis December 17, 1884, the son of Gustav Eklund and Louisa Marie Truwe Eklund. He attended Stevens Seminary in Glencoe and after graduating in 1902 entered the University of Minnesota. Here he received his medical degree in 1907 and then served as intern at Saint Joseph's Hospital in Saint Paul.

In 1908 Dr. Eklund began practice in Young America, marrying Elizabeth B. Collins that same year. He moved to Norwood in 1917 where he had since practiced except for a trip to Berlin and Vienna in 1934 for postgraduate work.

Dr. Eklund was always an active individual. He was

mayor of Young America for two years and was Carver County coroner for four years. He was a director of the Carver County Telephone Company at one time, and Health Officer for Norwood and several nearby townships. He was also company surgeon for the Chicago, Milwaukee and the Minneapolis and St. Louis railways.

During World War I he was a member of the Local Draft Board. He was also a member of the Scott-Carver County Medical Society and the Minnesota State and American Medical Associations, the A. F. and A. M. 142, the R. A. M. at Glencoe, the Knights Templar at Hutchinson and the Zuhrah Shrine of Minneapolis.

His hobbies included reading and travel. As medical adviser to many in his community and as a friend he was much beloved and esteemed. His wife and two daughters, Mary Louise and Jeanette (Mrs. Robert Yount) survive him.

ARTHUR DOUGLASS HIRSCHFELDER

With the passing of Arthur Douglass Hirschfelder, the University of Minnesota lost the man on whom, in 1913, it bestowed for the first time the title of "Professor and Director of the Department of Pharmacology." He was called to organize this new department at the age of 34. Thus, he was one of the youngest men ever appointed in charge of a department in the University of Minnesota Medical School. After occupying this chair for more than twenty-nine years, Dr. Hirschfelder died, at his home in Minneapolis, on October 11, 1942. The cause of his death was coronary sclerosis.

Dr. Hirschfelder was born in San Francisco on September 29, 1879. He was the only son of Dr. Joseph Oakland Hirschfelder, Professor of Clinical Medicine in the Cooper Medical College of San Francisco (now Stanford University). His father had studied medicine in Leipzig under such masters as Carl Ludwig, the celebrated German physiologist. With this heritage, it was only natural that the son should elect to study medicine. After obtaining his B.S. degree from the University of California in 1897 as its youngest graduate, he began the study of medicine in Munich and Heidelberg under Büchli, Kühne, and Otto Cohnheim. Later he returned to this country and entered the Johns Hopkins School of Medicine, from which he obtained his M.D. degree in 1903. Then there followed a year as intern under Osler in the Johns Hopkins Hospital, and a second year as Resident in Medicine at the San Francisco General Hospital and Assistant in Medicine, Cooper Medical College, under his father. In 1905 he returned to Hopkins to organize and direct the Physiological Laboratory of the Medical Clinic under Dr. Llewellys F. Barker, the first pure research position in clinical medicine in the United States. He remained at Johns Hopkins until he accepted the Chair in Pharmacology at the University of Minnesota.

His interest in medical research, he admitted on several occasions, was due largely to the influence of three men. These were his close friends, Jacques Loeb, whom he first met in 1899, and Arthur S. Loevenhart, his classmate at Hopkins and later Professor of Phar-



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macology at Wisconsin, and, last but not least, his father. It was the encouragement of the latter that started him on his study of the circulation at the San Francisco General Hospital.

His earliest contributions to the medical literature were on the cardiac arrhythmias and the venous pulse. These studies culminated in his well-received book, "Diseases of the Heart and Aorta," the first edition of which appeared in 1910. He continued this work after coming to Minnesota. However, he will also be remembered by his other work at Minnesota such as his introduction of saligenin as a local anesthetic, his studies on the physiology of the kidney, on certain phases of the pharmacology of barbitol hypnotics, magnesium, and calcium, and among his graduate students especially, by his contributions on, and interest in, antiseptics and chemotherapy. It was his fondest desire to dedicate his laboratory to the study of the application of chemistry to pharmacology and especially to the therapy of infectious diseases.

He made a number of contributions to the war effort during the first World War. With William Moore he collaborated in a National Research Council project on a study of louse repellents in clothing. A school for pharmacists' mates of the United States Navy was organized at the University largely due to his effort. Finally, he was called as pharmacologist to the Johns Hopkins Research Unit of the Chemical Warfare Service in the laboratory of Professor E. Emmet Reid in Baltimore. After the war he continued as a member of the Board of Consultants, Chemical Warfare Service, Edgewood Arsenal, for a number of years.

No account of Dr. Hirschfelder would be complete without mention of his role as a teacher. This, too, was a part of his University life that he thoroughly enjoyed. He had such a tremendous grasp of the literature, and he was so interested in discoveries and personalities, that, in his lectures, he would occasionally digress extensively, to the dismay of some students and to the great joy of many others; nevertheless, he was always interesting and stimulating. The same was true of his relations with his graduate students. In his earlier years at Minnesota hardly a day would pass that he did not give each student some new idea for his research. In later years his Seminars on the History of Pharmacology were most interesting and informative.

He was well liked by the members of his classes, and he liked them. Many a student in scholastic difficulties owed his continuation in medical school and ultimate graduation to Dr. Hirschfelder's intercession. These tasks, on the part of "The Chief," of helping students in trouble were among his most satisfying accomplishments. He will be loved and missed for many years to come.

RAYMOND N. BIETER.

ANDREAS P. LOMMEN

Dr. A. P. Lommen of Lanesboro spent the last few weeks of his life at Veterans' Hospital at Wood, Wisconsin. He passed away September 16, 1942, at that place and burial was in Lanesboro. The cause of his

MINNESOTA MEDICINE

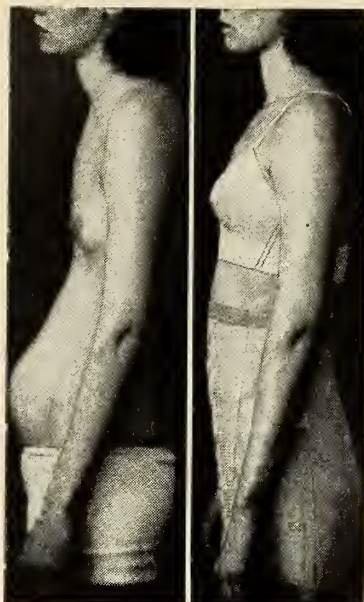
death was given as cerebral thrombosis with heart disease, coronary arteriosclerosis with myocardial damage and insufficiency as contributory. He was 75 years of age.

Dr. Lommen was born in Spring Grove, Minnesota, on May 10, 1867, the son of Peter Lommen and Maria Arnston, both of Norwegian birth. His wife was Stella Johnson of Newburg, Minnesota, and there are three children: Helen Lommen of Lanesboro; Robert Lommen, electrical engineer in Milwaukee; Paul Lommen, attorney in Lanesboro.

His education included grade school in Spring Grove, Gales College of Galesville, Wisconsin, for two years, and the University of Minnesota for one year before he entered the University of Minnesota Medical School where he obtained his medical degree on June 6, 1895. He taught rural school for one year, 1890-1891. He was licensed in Minnesota by examination on June 11, 1895.

Dr. Lommen was a member of the Lutheran church, I.O.O.F., Yeoman Lodge, Sons of Norway, and American Legion. He had held office as county physician, county health officer, chairman of the board of education, and was captain in the medical corps during the first World War. He was also mayor of Lanesboro preceding Mayor Teman Thompson. He was a member of the Fillmore-Houston County Medical Society and the Minnesota State and American medical associations.

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REPORTS and ANNOUNCEMENTS

MEDICAL BROADCAST FOR DECEMBER

The Minnesota State Medical Association broadcasts weekly at 10:15 o'clock every Saturday morning over Station WCCO, Minneapolis and Saint Paul, and at 11:30 o'clock over Station WLB, University of Minnesota. Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

December 5—Senescence and Senility

December 12—Special Health Problems of Middle and Late Life

December 19—Care and Management of Adults

December 26—Dental Replacements

COURSE IN OCCUPATIONAL DERMATOSES

A combined lecture and demonstration course in Occupational Dermatoses will be conducted in Chicago, beginning January 11, 1943, by Dr. Louis Schwartz, Chief of the Dermatoses Investigations Section of the U. S. Public Health Service of Bethesda, Maryland. The teaching period will cover two weeks, the first of which will be devoted to lectures and demonstrations, and the second to plant visits. Dermatologists, industrial physicians and others interested in the course should communicate with Dr. Edward A. Oliver, 55 East Washington Street, Chicago, Illinois.

No limit will be placed upon enrollment for the lectures, but the visits to the plants will be limited to twenty-four enrollees. No fees will be charged.

THE FIFTH ANNUAL FORUM ON ALLERGY

This international postgraduate society will meet in the Hotel Statler in Cleveland, Ohio, the week end of January 9 and 10, 1943. This Forum will offer in most intensive presentation both the new and the old in Allergy. The meeting will be characterized by its use of all the various types of instruction. Formal lectures, special talks, dry clinics, study groups, moving pictures, Kodachromes, panel discussions, ending with an "Information on Allergy, Please," will all be used to teach the physicians of the United States and Canada. Not only will specialists in this new field of Internal Medicine gather but also those whose interests are in allied fields of medicine will be welcome, for in wartime every physician is called upon to advise and treat allergic patients. This is especially true of those in Internal Medicine, Diseases of Children, Diseases of the Skin, Diseases of the Eye, Diseases of the Nose and Throat, as well as those engaged in basic research in Immunology. A course in Immunology as it applies to Allergy will be given the week before by Dr. Eckers to a limited number of physicians and associates. Any physician interested in either or both of the foregoing is invited to write Dr. Jonathan Forman, 956 Bryden

Road, Columbus, Ohio, for copies of the printed program and registration blanks.

Among the fifty-eight Allergists participating in the program are most of the leaders in this field including Fred Wittich, M.D., of Minneapolis. Arthur Coca of New York will receive the Forum's Gold Medal and will give the annual Forum lecture on Sunday afternoon.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and Country Club, Saint Paul, Tuesday evening, November 10, 1942. Following dinner at 6:30 o'clock, the program for the evening included papers on "Tetanus" by Dr. A. B. Baker and "Sequelæ in Equine Encephalomyelitis" by Dr. H. H. Noran (by invitation).

RED RIVER VALLEY MEDICAL SOCIETY

Thirty-five physicians and their wives were in attendance at the fall meeting of the Red River Valley Medical Society, held in Thief River Falls, October 27. Special guest of the evening was Dr. W. L. Bur-nap, delegate from the State Medical Association.

The program included presentation of a paper by Dr. Edward Bratrud of Thief River Falls on "Kidney Hemorrhages" and one by Dr. Charles G. Uhley of Crookston, on "Modern Treatment of Burns."

Wives of the physicians attending the meeting were entertained during the evening at the home of Mrs. H. K. Helseth.

RENNVILLE COUNTY MEDICAL SOCIETY

The annual meeting of the Renville County Medical Society was held in Olivia, Monday, November 9, in the high school building, where dinner was served by members of the Home Economics class.

Speaker of the evening was Rev. Fr. Carl Wohlford of Clara City, missionary in India for seventeen years, who told of the customs and castes in India.

Dr. James A. Cosgriff of Olivia was elected president of the Society for the coming year.

WASHINGTON COUNTY SOCIETY

The Washington County Medical Society held its regular monthly meeting Tuesday evening, November 10, in Stillwater.

Dr. Everett K. Geer of Saint Paul spoke on "Chest X-Ray Values and Diagnosis." He interpreted thirty-eight radiographs taken of positive Mantoux test reactors at the Stillwater High School, where the test was made on October 13. A discussion hour followed in which Dr. Geer answered questions concerning the subject presented in his talk.

WOMAN'S AUXILIARY

MRS. RAYMOND J. JOSEWSKI, *President*

Stillwater, Minnesota

MRS. W. H. RUCKER, *Publicity Chairman*

Minneapolis, Minnesota

East Central

The East Central Medical Auxiliary met in Cambridge, Minnesota, October 21 with Mrs. D. E. McBroom. Mrs. A. B. Roehlke, president and Mrs. W. P. Gardner, *Hygeia* chairman, gave reports. There were eleven members and three guests present.

Nicollet-Le Sueur

Mrs. Hobart C. Johnson of Nicollet-Le Sueur Auxiliary reports that the group's last meeting was the September Public Relations tea at St. Peter, Minnesota.

Each member presented a vase to the Community Hospital in St. Peter and, from money previously earned, decided to purchase pen sets with chains attached for use at the hospital.

Park Region

The Park Region Medical Auxiliary members were the guests of the Medical Society at their regular dinner meeting at the River Inn, Fergus Falls, October 14, 1942.

Members had the pleasure of hearing Dr. Hall deliver an address covering many interesting features

of his recent stay in England with an American medical unit there.

A short business and social meeting then was held at the home of Mrs. W. O. B. Nelson. At this time, Mrs. A. C. Baker gave her report of the State Meeting at Duluth. The president of the auxiliary, Mrs. A. J. Lewis, read the committee appointments for the year, which were as follows:

Ottertail Sanatorium.....
.....Mrs. C. A. Boline and Mrs. K. E. Bergquist
Hygeia.....Mrs. Theodore Satersmoen
Public Relations.....Mrs. A. C. Beker
Publicity.....Mrs. Frank Naegeli

Ramsey County

The Ramsey County Medical Auxiliary plans to continue regular meetings and follow, as closely as possible, the schedule of previous years, in this way keeping members united to carry on the very important philanthropic work planned.

The Red Cross Sewing and Surgical Dressing Unit meets once a week. This unit has been functioning all summer and has thousands of articles to its credit.

A large group belong to the Public Health Speakers' Bureau—for the Christmas Seal Drive, another group has charge of Christmas Seal booths for December 8 and the Ramsey County Auxiliary again, as for many years past, will send a committee to act as judges for the Tuberculosis Essay Contest, as well as to donate a trophy for the winner from Ramsey County.

Two new committees were added this year: (1) The



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War Service Committee was appointed, to help whenever called upon at the Service Men's Club in Saint Paul. Ten dollars has been donated to this cause and used phonograph records are being collected. (2) The Sunshine Committee consists of members who will visit the sick members, write notes of condolence, send flowers and contact wives of doctors in the service of the armed forces.

The Medical and Surgical Committee of America is busy collecting used surgical instruments and supplies. The doctors have kindly set aside a room in the medical library for this activity.

The first meeting of the year was held at the home of Mrs. Arnold Schwyzer in Saint Paul with a large attendance. Mrs. R. J. Josewski, State Auxiliary President, spoke to the group, outlining the plans of State Auxiliary activities for the year.

Washington County

Washington County held its October meeting in Stillwater at the home of Mrs. R. J. Josewski, president of the State Medical Auxiliary. The most important measure passed by the group, over which Mrs. R. G. Johnson presided, was a vote placing *Hygeia* in sixteen of the county schools.

During the social hour which followed, a parting gift was given to Mrs. Russell Carlson who left Stillwater October 15 when Dr. Carlson entered military service.

INDUSTRIAL HEALTH

(Continued from Page 1008)

and if general enlargement is noticed, the applicant is rejected. One of our individuals of long employment had enlarged glands in the groin which was lympho granuloma inguinale. As a complication from injury this was denied.

Blond Workers Prone to Dermatitis

People with flat feet are apt to have repeated attacks of pain and discomfort on standing jobs. The blond or auburn type workers are more prone to severe dermatitis, as are the oily-skin employees on greasy jobs or the dry-skin individual on the jobs to aggravate the symptoms. The skin is observed also for color and its healthy appearance. We know also long scars over the long bones may be from previous osteomyelitis or plating. They are potential risks. Your contact informs you often of a careless, an alert, a dependable or a slow, dull worker. Your exchange communications often prewarn you of the malingerer.

A preview of many desirable findings for the incoming workman has been reviewed the importance of which has frequently been experienced by us. Among controversies arising from injuries, under our care, have been sarcomas developing in the injured soft tissue to the leg, superimposed on a fibrous warty growth of years' standing. We have seen three such cases. We have encountered a pathological fracture, a T. B. joint complicating with injury, a charcot joint with injury, numerous back complaints, more as recurrent trouble than actual acute involvements, and a number of injured ankylosed fingers where previous records saved on the permanent injury settlement. We have mentioned strangulated hernias of various types which are compensable, also the bleeding varicosities and slow-healing ulcers.

Careless workers and malingerers are positively undesirable employees. In hazardous employment, rejection of serious potential risks from industry, not only results in saving of time and expense for the employer, but also saves the workman and his family trying moments of anxiety and sorrow which might be their lot.

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OF GENERAL INTEREST

Dr. O. N. Bossingham of Lake Benton is now in Clarinda, Iowa, where he will remain for the duration of the war, having taken over the practice of his son, Dr. Earl N. Bossingham, who is in service in New Guinea.

* * *

Dr. E. V. Strand and Dr. J. H. Haines of Stillwater this year acted as judges of essays on "Tuberculosis" by Stillwater High School students. Dr. Strand and Dr. F. M. McCarten judged the Junior High School essays.

* * *

Dr. J. de J. Pemberton was re-elected president of the Mayo Clinic staff at the annual dinner held November 16. Dr. F. J. Heck was renamed secretary. Councilors are Dr. H. F. Helmholtz and Dr. B. R. Kirklin.

* * *

Dr. Lawrence J. Leonard of Minneapolis has opened offices in Columbia Heights. Dr. Leonard will continue to maintain his office at West Broadway and Oliver Avenues in North Minneapolis, dividing his time between the two communities.

* * *

At the Conference on Venereal Disease Control Needs in Wartime held at Hot Springs, Arkansas, October 21 to 24, under the auspices of the United

States Public Health Service, Dr. Arthur H. Sanford of Rochester presented a paper entitled "New Serologic Tests for Syphilis and Their Demonstrated Efficiency."

* * *

Dr. Charles P. Mannin was married to Miss Lucia Carole Bellinger of Atlanta, Georgia, on October 1, 1942 in Atlanta. Dr. Mannin, who has a fellowship in General Surgery at the Mayo Clinic, Rochester, Minnesota, has received a commission as Lieutenant (jg) in the Navy and has reported for duty at the Corona Naval Hospital, Corona, California.

* * *

Dr. Charles E. Lyght, professor of health and physical education at Carleton College, Northfield, and director of the College Health Service, has accepted a position with the National Tuberculosis Association, New York, as director of the Department of Health Education. He will assume his duties in New York soon after the first of the year.

* * *

Dr. Irvine McQuarrie, professor of pediatrics, University of Minnesota Medical School, delivered on November 3 and 4, three addresses in the twelfth Porter Lectureship in Medicine at the University of Kansas School of Medicine. Tuesday, November 3, he spoke at the Kansas City branch on, "Experiments

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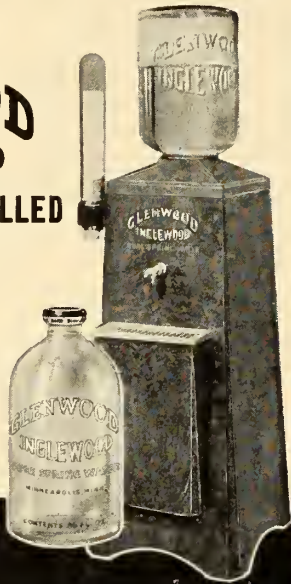
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of Nature and the Advancement of Medical Knowledge." On November 4 he spoke at Lawrence on "Medical Experience in Besieged China," and that night again at Kansas City, on "Diseases of Adrenal Glands in Children." The Porter Lectureship is supported by a sum of money bequeathed to the School of Medicine of the University of Kansas in 1918 by Dr. J. L. Porter of Paola, Kansas. Besides the annual lectureship it provides a scholarship for a worthy student.

* * *

Dr. Jens Ohnstad, pioneer physician of McIntosh, completed thirty-nine years of service as physician in his community on October 7, 1942. In an interview published in the *McIntosh Times*, Dr. Ohnstad tells of his early experiences in the horse and buggy days, going back to his student days in the state medical school, which was then a part of Hamline University. Dr. Ohnstad has practiced continuously in McIntosh since his graduation from medical school with the exception of a short period spent in Minneapolis in perfecting his surgical technique. In 1918, Dr. Ohnstad built the city hospital in McIntosh complete with facilities for surgical and medical treatment. He has kept abreast of medical progress through postgraduate study and has been an active member of his local, county, state and national medical associations. The interview ends with the following tribute to Dr. Ohnstad's contribution to his community: "Dr. Ohnstad can be considered one of the finest of McIntosh citizens, and has given a broad, progressive, unselfish service toward the welfare of the city."

* * *

Interdepartmental Seminar

Subjects presented in the Interdepartmental Seminar at the University of Minnesota, Wednesday, November 25, included the following:

"Earliest Evidence of Deficiency of Thiamin and Riboflavin," Russell M. Wilder, M.D., H. L. Mason, M.D., and M. M. D. Williams, M.D.—Mayo Foundation,

"Manifestation of Prolonged Use of Diets Low in Fat in Dogs," Arild E. Hansen, M.D., Hilda F. Wiese, Ph.D., and Erma Miller, M.S.—Department of Pediatrics.

1. "Reaction of the Human Gall Bladder and Sphincter to Magnesium Sulphate;" 2. "The Effect of Sectioning Nerves to the Sphincter of Oddi;" E. A. Boyden, Ph.D.—Department of Anatomy.

* * *

Physicians in Service

Dr. Russell E. Carlson of Stillwater is stationed at Fort O'Reilly General Hospital, Springfield, Missouri.

Dr. C. E. Stafford of Baudette reported for duty at Barnes General Hospital, Vancouver, Washington, in November. Dr. Stafford recently received word through Washington, D. C., that his parents, who are residents of the Phillipines, are now prisoners in a Japanese concentration camp, and are both well.

Dr. Hendrik Svien of Rochester, who was appointed

assistant surgeon with the rank of lieutenant in the United States Navy last spring, received his orders for active duty and reported at the naval medical center at Bethesda, Maryland, November 1.

Dr. R. A. Whitney of Cambridge is stationed at Fort Sam Houston in Texas. Dr. P. C. Peterson of Braham will take care of Dr. Whitney's practice during his absence.

Major S. B. Lovelady and Captain Louis D. Vaughn of Rochester have been assigned to the medical training battalion at Camp Grant, Illinois.

Dr. W. F. Muir of Graceville reported for duty at Camp Robinson, Arkansas, November 1. He has been commissioned a first lieutenant in the Army Air Corps.

Dr. C. H. Coombs of Bemidji reported for duty as assistant surgeon, with the rank of lieutenant, at the navy training base at Great Lakes, Illinois, November 1. Dr. R. W. Campbell of Cass Lake will take over the practice of Dr. Coombs for the duration of the war.

Dr. Charles A. Aling of Minneapolis received his commission of captain in the U. S. Army and reported for duty at Camp Berkeley, Texas, in November. Captain Aling's practice in Northeast Minneapolis will be taken over by Dr. Ruth Lundberg for the duration of the war.

Lieutenant Harold C. Freedman of Minneapolis, now at Gardner Field, California, has received promotion to a captaincy.

George Chase Christian Professorship

Material expansion of a program of research into the causes of cancer now under way at the University of Minnesota was made possible when the Board of Regents accepted a gift of \$5,500 a year, for five years, from the Citizens Aid Society of Minneapolis to support what will be known as the George Chase Christian Professorship in cancer research. It will be the first professorial chair in the University of Minnesota Medical School to be named for an individual.

On recommendation of Dean Harold S. Diehl and President W. C. Coffey, the Regents appointed to the post Dr. John J. Bittner, now associate director and vice president of the Board of Directors of the Roscoe B. Jackson Memorial Laboratory at Bar Harbor, Maine, of which institution Dr. Bittner has been a staff member since 1930.

Dr. Bittner will increase to three a team now composed of Drs. Maurice B. Visscher and Robert G. Green who are studying the etiology of mammary cancer in mice. Studies by Dr. Bittner have shown that young mice born to a high cancer strain mother are likely to develop cancer if nursed by the mother, whereas if taken from her and nursed by a mother from a low cancer strain they are quite likely to be cancer free. Three factors in the etiology of mouse cancer on which he and Drs. Green and Visscher have been working are that cancer is transferred by an agent in mother's milk, that mammary gland development is stimulated by estrogenic hormones, and the



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likelihood that a virus agent is present in advance of the cancer development.

Dr. Bittner is credited with much important early work in this approach to the cancer problem. An experiment published by him in collaboration with Green and Visscher indicated that the agent of the milk of females of cancerous strains is a colloid of high molecular weight and may be a virus.

Dr. Bittner will move to Minneapolis with his family as soon as housing and laboratory arrangements can be made. Born in Meadville, Pa., in 1904, he was graduated from St. Stephens College in 1925 and in 1927 became a research assistant at the University of Michigan, receiving his Ph.D. degree there in 1930. He has won many research honors including the Alvarada Prize of the College of Physicians, Philadelphia. In 1940 he delivered the George Chase Christian lecture at the University of Minnesota. The Cancer Institute in the University Hospital is a memorial to the late Mr. Christian, and Mrs. Christian, a resident of Minneapolis, has encouraged the Citizens Aid Society in support of cancer research work for many years.

In the new Minnesota team Dr. Bittner will approach the cancer problem as a geneticist, Dr. Visscher as a physiologist, and Dr. Green as a bacteriologist with a special interest in viruses.

* * *

Hospital News

Dr. Bernard J. Terrell, formerly of Duluth, has been named superintendent of Buena Vista Sanatorium at Wabasha, taking over his duties December 1.

* * *

Dr. A. G. Sanderson of Granite Falls has accepted appointment as resident physician at the Minnesota State Sanatorium at Ah-Gwah-Ching, and is now established in his new position.

* * *

Dr. H. A. Burns, superintendent of the State Sanatorium at Walker, has been appointed by Carl H. Swanson, Minnesota director of public institutions, as head of the tuberculosis control unit in state mental hospitals. Dr. Burns will work on unification of central care and treatment of tuberculosis patients in state mental hospitals, with offices in the State Office Building, Saint Paul. Dr. Burns, who has been at Walker for thirteen years, will be succeeded there by Dr. F. F. Callahan, superintendent of Pokegama Sanatorium.

* * *

Newly elected officers of the Minneapolis Hospital Council, which has been reorganized to include representatives of governing boards of member hospitals in addition to hospital executives, are as follows: President, C. Bolles Rogers, of St. Barnabas Board of Trustees; vice president, Ray Amberg, superintendent of University Hospitals; secretary, Sister Anna Bergland, superintendent of Deaconess Hospital; treasurer, William Kunze, president, Board of Commissioners, Glen Lake Sanatorium. A. G. Stasel, superintendent of Eitel Hospital, was elected chairman of the administrators' section of the Council. The

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BOOK REVIEWS

reorganization plan was adopted to enable member hospitals to improve their services.

* * *

Miss Homer Harris has resigned her position as superintendent of the Virginia Municipal Hospital. Her successor has not yet been named, according to reports received at the time of going to press.

* * *

Glenwood Community Hospital won honors at the meeting of the American Hospital Association in St. Louis, Missouri, in October, when it was named as recipient of the National Hospital Day award for hospitals in cities under 15,000 population.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

A VENTURE IN PUBLIC HEALTH INTEGRATION. The 1941 Health Education Conference of the New York Academy of Medicine. 56 pages. Price, \$1.00, cloth. New York: Columbia University Press, 1942.

1942 YEAR BOOK OF GENERAL MEDICINE. Edited by George F. Dick, et al. 848 pages. Illus. Price, \$3.00, cloth. Chicago: Year Book Publishers, 1942.

FUNDAMENTALS OF PSYCHIATRY. Edward A. Strecker, M.D., Sc.D., F.A.C.P. Professor of Psychiatry and Chairman of the Department, Undergraduate School of Medicine, University of Pennsylvania; Psychiatrist to the Pennsylvania Hospital; Attending Psychiatrist, Psychopathic Division, Philadelphia General Hospital. 201 pages. Illus. Price, \$3.00, cloth. Philadelphia: J. B. Lippincott Co., 1942.

WHEN DOCTORS ARE RATIONED. Dwight Anderson, Director Public Relations of the Medical Society of the State of New York; and Margaret Baylous, Therapist, Charleston General Hospital, Charleston, W. Va. 255 pages. Price, \$2.00, cloth. New York: Coward-McCann, Inc., 1942.

THE MAKING OF A SURGEON: A Midwestern Chronicle. Ernest V. Smith, M.D., D.Sc., F.A.C.S. First edition, blue fabricoid, gold-stamped. 344 pages, 45 illustrations. Fond du Lac, Wisconsin: Berndt Printing Co., 1942. Price, \$3.00.

The author of this work was graduated from the old University of Minnesota College of Medicine and Surgery in 1907. Prior to that time his life had been one of unmitigated hardship and struggle. An Indiana orphan boy, he performed the most arduous manual labor he could get to do, merely to gain a living; later he worked in the fields, in a Colorado mine, in the villages of arid Kansas, and the bitter-cold streets of Minneapolis, to support himself while he studied first at Wabash College and then the University of Minnesota.

One of the first fellows to be enrolled in what is now known as the Mayo Foundation for Medical Edu-

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cation and Research at Rochester, he became the first male surgical assistant Dr. William J. Mayo ever had, after the retirement of Sister Joseph from that post. When he left the Mayo Foundation in 1916 he formed a copartnership at Fond du Lac which has been exceptionally successful and remains so.

His book, which is essentially a plea for the training and code of ethics which Dr. Smith believes should characterize the surgeon of today, is a scrupulously honest presentation by a highly skilled surgeon who has decided convictions as to how surgery should and should not be conducted. The author has not been content to piece together a series of mellowed reminiscences; he has attacked evil where he believes he has found it, and has been quick to bestow praise when he believes praise is merited. His book is forthright and valuable.

FOOD CHARTS: FOODS AS SOURCES OF THE DIETARY ESSENTIALS prepared by a joint Committee of the Council on Foods and Nutrition of the American Medical Association and of the Food and Nutrition Board of the National Research Council. Paper. Price 10 cents. Pp. 20. American Medical Association, Chicago, 1942.

Current interest in nutrition is at a high level and the subject merits all the attention which it is receiving. Information about the composition of foods now is on a quantitative basis. A forceful presentation of some facts about foods as sources of the dietary essentials is provided by the present illustrated essay, which has been prepared by a joint committee of the Council on Foods and Nutrition of the American Medical Association and of the Food and Nutrition Board of the National Research Council. There are eight charts showing the contribution that individual foods may make with respect to the needs for protein, calcium, iron, vitamin A, thiamine, riboflavin, nicotinic acid, and ascorbic

acid. A feature of these graphic presentations is that the values are presented in terms of the proportion of the daily requirements which are supplied by typical servings of each food. The requirements selected are the Recommended Daily Allowances of the Food and Nutrition Board of the National Research Council. The charts show, for example, that a serving of about 3½ ounces of cooked greens (beet, kale, chard, mustrd, spinach, turnip) will supply more than 10,000 International units of provitamin A, the daily allowance of which is 5,000 International units. An orange of average size, or half a grapefruit, or a serving of fresh strawberries will supply the 75 milligrams of ascorbic acid which is considered to be a desirable intake of vitamin C. It is interesting to note the unique value of milk as a source of calcium, protein and riboflavin. There is a descriptive paragraph or two about each of the charts. In addition the booklet reproduces the table of Recommended Dietary Allowances and also provides the values of Minimum Dietary Requirements developed by the Food and Drug Administration for purposes of labeling special dietary foods. This little essay thus provides considerable factual information about foods as sources of the dietary essentials.

SURGERY OF THE AMBULATORY PATIENT. L. Kraer Ferguson. Section on Fractures by Louis Kaplin. 923 pages. Illus. Price \$10.00. Philadelphia: Lippincott, 1942.

This book is well written, concise, practical and contains a very excellent chapter on anesthesia. It will be invaluable for the physician who does minor surgery in the office and for interns, but is valuable for any practicing physician.

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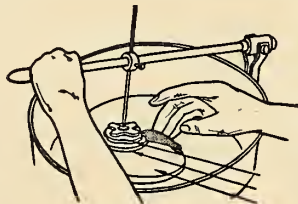
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